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THE
Journal of the Society of Arts,
AND OF
THE INSTITUTIONS IN UNION.

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Announcements by the Council.

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PROGRAMME OF EXAMINATIONS FOR 1865.

PRELIMINARY NOTICE.

I. The Examinations described herein have been established for the benefit of the members and students of Institutions in Union with the Society of Arts. Such persons are commonly mechanics, artisans, soldiers,* labourers, clerks, tradesmen and farmers in a small way of business, apprentices, sons and daughters of tradesmen and farmers, assistants in shops, and others, of various occupations, who are not graduates, undergraduates, nor students of a University, nor following nor intending to follow a learned profession, nor enjoying nor having enjoyed a liberal education. To all such members and students, and persons of the like condition, male and female, not being nor having been professional teachers or pupil teachers, the Examinations, certificates, and prizes, described in this programme, are open on the general conditions stated herein. Persons who are, or have been, professional teachers, or pupil teachers, may obtain certificates, but cannot compete for prizes.†

II. The certificates are not competed for. They are awarded as records of positive not comparative attainment. The prizes are competed for.

III. For the conditions on which persons of a higher grade in society may be examined and receive certificates, but not compete for prizes, see par. 10 (D).

IV. The candidates for Examination have not to go to a distance from their homes. The examinations are held in all places in the United Kingdom where a Local Educational Board connected with the Society of Arts is willing to make the requisite arrangements.

V. For a list of the Local Boards already formed, see page 624.

VI. For instructions as to the formation of Local Boards and their duties, see page 617.

The EXAMINATIONS are twofold—

(1.) The Previous Examinations by District Unions and Local Boards for persons of any age not under 12.

(2.) The Final Examination by the Society of Arts Board of Examiners, under the supervision of the Local Boards, for persons of any age not under 16.

PREVIOUS EXAMINATIONS BY DISTRICT UNIONS AND LOCAL BOARDS.

1. These are intended to serve two purposes:—

(1st.) To "sift" the Candidates for the Final Examination, so as to keep back those who, not being yet fairly grounded in the elements of education—spelling, writing, and arithmetic—nor fairly acquainted with the subject or subjects in which they desire to be examined by the Society of Arts, are unlikely to succeed in that Examination. The sifting in elementary subjects may be effected in any mode at the discretion of the Local Boards; but they are recommended (for the sake of convenience and uniformity) to adopt the "Scheme of Elementary Examinations" given below. The best mode of sifting the Candidates in the subjects in which they desire to be examined by the Society of Arts is for the Local Boards to examine them therein by means of printed (or written) questions and written answers; but, where a Local Board finds itself without the means of conveniently holding such an Examination in any special subject, such Board may satisfy itself in any other mode, and state simply that it has satisfied itself, that the Candidate is fit to be examined by the Central Board in that subject.

2. (2nd.) To encourage and lead on those who, from the insufficiency of their age or of their elementary knowledge, are not yet qualified for admission to the Final

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* The following circular memorandum (Gen. No. 331), addressed to the army at home, has been issued:—"Miscellaneous 1 (1865).—The Field Marshal Commanding-in-Chief desires it to be notified that there will be no objection to soldiers, their wives, and families, being permitted to present themselves for instruction and examination at the Educational Institutes in connection with the Society of Arts, on the understanding that they are not on that account to be exempted from any military duty, nor, except in special cases, to be out of barracks after watch-setting or tattoo.—By command of his Royal Highness the Field Marshal Commanding-in-Chief, JAMES YORKE SCARLETT, Adj. Gen.—Horse Guards, S.W., 11th March, 1865."

† Except in some special cases where prizes are expressly offered by local bodies to pupil teachers.

Examination of the Society of Arts, but desire to obtain minor certificates from the District Unions and Local Boards.

3. The beneficial effect of such Examinations in elementary knowledge is greatly enhanced where prizes are offered by the District Unions and Local Boards to be competed for by the Candidates.

Scheme of Elementary Examinations for 1866.

4. This scheme has been agreed on by the representatives of the District Unions in connexion with the Society of Arts, and presents therefore the advantages of a common standard of uniform Examination Papers, and of common forms of Certificate to be granted by the various District Unions and Local Boards.

5. It is in two grades, and the Candidates should be allowed to select either grade at their discretion.

Lower Grade.

1. Every candidate must be examined in the first four rules of Arithmetic, simple and compound.
2. Female candidates must also be examined in plain needlework.
3. Male candidates must also be examined in *one* at least of the three following subjects:—
    - A. A General knowledge of the Gospel History.
    - B. The rudiments of English History.
    - C. The rudiments of the Geography of England.
4. Fairly good writing and spelling, with good reading of a simple narrative, will also be required.
5. A satisfactory examination will entitle the candidate to a certificate from the District Union or Local Board.

Higher Grade.

1. Every candidate must be examined in Arithmetic, including the Rule of Three, Decimal and Vulgar Fractions.
2. Every female candidate must also show proficiency in needle-work.
3. Male candidates must also be examined in *one* at least of the three following subjects:—
    - A. The facts of St. Matthew's Gospel and the Acts of the Apostles.
    - B. A General knowledge of English History, and especially of the reign of George III.
    - C. The Geography of Great Britain and Ireland.
4. A fairly good handwriting, spelling, and knowledge of grammar will also be required.
5. A satisfactory examination will entitle the candidate to a certificate from the District Union or Local Board.

6. These Examinations must, in 1866, be held on the 13th and 14th March, after three o'clock, p.m.

7. The Secretary of each District Union and Local Board desiring to use the Elementary Examination papers,* and the Forms of Certificate, provided for common use, must apply for them to the Secretary of the Society of Arts, before the 13th of February, stating the number of *male* and *female* candidates respectively in *each grade*. The Examination papers will be forwarded to the Secretary of the Board, but must of course be kept secret from the candidates until the time of the Examination.*

8. When the Previous Examinations are completed, a return, in the following form, must be made to the Secretary of the Society of Arts, who will then forward the proper number of blank Forms of Certificate to be awarded by the Local Board:—

Elementary Examinations, 1866.

Name of Board or District Union. } ____________________

No. of Centres ________

	Higher Grade.		Lower Grade.	
	Examined.	Passed.	Examined.	Passed.
Males...............				
Females				
Totals				

FINAL EXAMINATION BY THE SOCIETY OF ARTS.

9. No Candidate can be admitted to the Final Examination without a Certificate or Pass from a District Union or Local Board, before which he or she has passed a Previous Examination.

10. Every admitted Candidate must be at least 16 years of age.

(*A.*) Members of, or students of classes in, Institutions in Union with the Society of Arts, are examined ... ... Free.

(*B.*) Members of, or students of classes in, Small Institutions,† not in Union with the Society of Arts, but subscribing one guinea a year for admission to the Examinations alone, are examined ... ... Free.

(*C.*) Members of, or students of classes in, "Small Institutions"* not in Union with the Society of Arts, but connected with it through a District Union or Local Board, are examined on payment of a fee of ... ... 2s. 6d.

(*D.*) Persons of a higher class of society than those described in paragraph 1. (Preliminary Notice), are examined on payment of a fee of 10s. 6d.

N.B. The Council in every case leave it to the Local Board to decide whether a candidate should pay this higher fee.

11. Candidates coming under the head (*D.*), as well as Professional Teachers and Pupil Teachers, though they may receive certificates, cannot compete for prizes.

12. A copy of Form No. 2 will be forwarded, on the 1st March, to the Secretary of each Local Board, and must be filled up and returned to the Secretary of the Society of Arts before the 20th March. The requisite number of forms No. 4 will then be forwarded, and these, when filled up, must be returned not later than the 2nd of April. Each of these forms, when returned, will be numbered at the office of the

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* The uniform Examination Papers afford a common standard of examination; and, to promote uniformity in the application of that standard, special copies of the examination papers, with the number of marks to be awarded for a complete answer to each question, will be printed for the use of the examiners alone. Thus, suppose that in a paper there are twelve questions, and that the aggregate number of marks assigned to the paper is 120; the number of marks placed opposite to each of the questions will depend upon their relative difficulty, and the proportion of these marks given by the examiner for the answer of any candidate will depend upon its accuracy and completeness. Supposing a perfect answer to a question to be set down as worth 20 marks, an examiner may award 20, 15, 12, or any less number, according to the merit of the answer. Thus the candidates all over the country, though their papers be tested by different examiners, will be placed as nearly as possible upon an equal footing. No candidate should receive a certificate who does not obtain at least 30 marks in *each* paper, the whole paper being worth 120 marks. In the subjects of reading, writing, spelling, and needlework, it is not thought desirable to fix any number of marks as a standard of proficiency. It is important that the same person should examine *all* the candidates in any one subject at any centre.

* In any case in which a Local Examining Body may examine candidates in the doctrines of Holy Scripture, in the Prayer Book, or in any other religious formulary, the results of such Examination may be stated, by that local Examining Body, on the certificate; though the form of certificate provided for common use does not include religious doctrine. The "Metropolitan Association for Promoting the Education of Adults" announces that at its request the Bishops of London and Winchester have established collateral examinations in the Bible and Prayer Book, with certificates and prizes for those certificates of that Association who may desire to undergo examinations in such subjects.

† Small Institutions are defined as those which have an income of less than £75 a year.

Society of Arts, and a card for each candidate, with his name and his number, will afterwards be forwarded to the Secretary of the Local Board for distribution, together with copies of the time-table.

13. The printed papers of questions in the various subjects will be afterwards forwarded to the Secretary of the Local Board; the whole of the papers appointed for each of the evenings of the Examination being contained in a separate sealed envelope, which is not to be opened till the Candidates are present, at half-past six on that evening.

14. Precise details as to the mode in which the Final Examination is to be conducted are contained in the Letter of Instructions, and members of the Local Boards should make themselves thoroughly acquainted with them.

15. When the Candidates' papers have been submitted to the judgment of the Society's Examiners, certificates of three grades will be awarded, and the names of the Candidates who obtain prizes and certificates will be afterwards published in the *Journal of the Society of Arts*.

16. A Candidate who has obtained from the Society a certificate of the 1st class in any subject cannot again be examined in the same subject; but a Candidate who has obtained a certificate of the 2nd or 3rd class may, on the recommendation of the Local Board, be examined in the same subject, in a subsequent year, without again passing the Previous Examination.

17. A Candidate who, having obtained a certificate in any subject, desires to be examined in some other subject, in a subsequent year, may be "passed" by the Local Board, after examination in that subject, without re-examination in the elementary subjects; but, in all cases, the name must be returned in the proper form (No. 4).

18. Particulars of the subjects for the Final Examination are given.

19. The Time-table has been drawn up to meet the general convenience of the Candidates; and *no variation* of it can *possibly* be allowed, so that, in choosing the subjects in which they desire to be examined, Candidates must take notice of the arrangements of this Time-table, as they *cannot* be examined in *two* subjects which are set down for the same evening. The hours of Examination must be strictly adhered to.

20. The Examiners will reject all ill-written, ill-spelt, ill-composed, or ungrammatical papers that may be laid before them.

TIME-TABLE FOR 1866.

TUESDAY, 24th April, From 6.30 to 9.30 p.m.	WEDNESDAY, 25th April, From 6.30 to 9.30 p.m.	THURSDAY, 26th April, From 6.30 to 9.30 p.m.	FRIDAY, 27th April, From 6.30 to 9.30 p.m.
Arithmetic. Trigonometry. Electricity and Magnetism. Light and Heat. Mining and Metallurgy. Geometrical Drawing. German. Floriculture.	Book-keeping. Navigation, &c. Conic Sections. Chemistry. Music. Domestic Economy. English History. Italian.	Algebra. Practical Mechanics. Animal Physiology. Political and Social Economy. French. †English Literature. Fruit and Vegetable Culture. Freehand Drawing.	Geometry. Mensuration. Principles of Mechanics. Botany. Geography. Latin. Logic and Mental Science. Spanish.

† Two Papers of one hour and a half each in this subject are considered as one.

LOCAL EDUCATIONAL BOARDS.

21. Local Boards may be formed wherever the managers of Institutions, or other persons, may be prepared to co-operate with the Society of Arts.

22. Each Local Board must consist of at least three members, and must have a Chairman and a Secretary. The district for which the Board is to act should be defined; and every Educational Institution within those limits should be represented in the Board. The composition of the Board must be such as to command the respect and confidence of the neighbourhood. No member or officer of a Local Board can be admitted to the examinations.

23. The duties of the Local Boards may be defined as follows:—

(*A*) To give publicity to the system of Examinations by the circulation of the programmes, hand-bills, &c. (copies of which will be furnished *gratis* on application), and to give encouragement and advice to those young persons who are likely to become candidates.

(*B*) To hold the Elementary or Previous Examinations.

(*C*) To superintend the Final Examinations.

24. Local Boards make no payment to the Society, unless they exercise the power of admitting candidates who are not members of any Institution in union with the Society of Arts (see par. 10 *C*.); in which case a subscription of one guinea a year must be paid.

25. A detailed list of each Local Board (giving the exact address of the Secretary) must be submitted to the Council of the Society of Arts before the 1st of February, 1866, when the general list of such Boards will be published; and where a Local Board comprises so large a district that, for the convenience of the candidates, Branch Local Boards have to be formed, lists of these must also be given. All changes in the composition of the Boards must be notified to the Society of Arts.

SUBJECTS FOR THE FINAL EXAMINATION IN 1866.

⁂ Owing to the small number of candidates desiring (for several years past) to be examined in Astronomy and Agriculture, the Council, on the recommendation of the Education Committee, have removed these two subjects from the list; but should they be informed, in any subsequent year, that these subjects are being studied by any considerable number of candidates, they will feel pleasure in restoring them to the Programme. No paper will be set in Conic Sections unless information is received before the 1st of January, 1866, that several candidates are intending to be examined in that subject.

26. In the following paragraphs will be found brief outlines of the subjects in which candidates may be examined, and their attention is especially drawn to this part of the Programme. In many instances the Examiner has set down certain Text-books; but, in most cases, a candidate may exercise his own judgment as to what Text-Book he uses; real knowledge, however or wherever acquired, will be accepted by the Examiners. In the following subjects, however, Political Economy, English History, English Literature, Logic, Latin and Roman History, French, German, Italian, and Spanish, the course of study is necessarily prescribed with more or less exactness.

I.—ARITHMETIC.

Examiner.—Rev. Alexander Wilson, M.A., National Society, London.

27. Practice—Simple and Compound Proportion—Interest—Discount—Insurance—Vulgar and Decimal Fractions; with the principles of a Decimal Notation in money on the basis of the pound unit.

28. The questions framed from the preceding syllabus will consist mainly of practical problems, and the Examiner will take into account not only the correctness of the answers, but also the excellence of the methods by which they are worked out, and the clearness and neatness of working, *which must always be shown*.

29. Text Books:—Any of the modern treatises on Arithmetic, such as Hunter's Text Book (*National Society*), Colenso (*Longmans*), or Barnard Smith (*Macmillan*).

II.—Book-keeping by Double Entry.

Examiners.—**John Ball, Esq., of the firm of Messrs. Quilter and Ball, and Robert G. C. Hamilton, Esq., Principal Accountant to the Committee of Council on Education.**

30. Candidates should be prepared to answer questions as to the nature and use of the different books usually kept in a merchant's office; to journalize a series of transactions from a waste book, and having posted the entries to the ledger, to balance the accounts, to prove the correctness of the postings by a trial balance, and finally to exhibit an account of profit and loss, and a balance sheet.

31. Text Books:—Rudimentary Book-keeping (*Weale's Series*). Kelly's Elements of Book-keeping (*Simpkins and Co*). Examination-Questions in Book-keeping by Double Entry, by the Rev. J. Hunter, M.A. (*Longmans*).

III.—Algebra.

Examiner.—**J. J. Sylvester, Esq., M.A., F.R.S., Professor of Mathematics at the Royal Military Academy, Woolwich.**

32. Elementary Operations and Fractions, Simple and Quadratic Equations and Problems leading to them. Involution and Evolution. Surds. Arithmetical, Geometrical, and Harmonic Series. Combinations and Permutations. Binomial Theorem. Scales of Notation. Interest and Annuities. Elementary Theory of Probabilities.

33. Text Books:—Todhunter's Algebra (*Macmillan*), Colenso's Algebra (*Longmans*), Lund's, or any other modern treatise on Algebra.

IV.—Geometry.

Examiner.—**Rev. B. Morgan Cowie, M.A., Professor of Geometry at Gresham College; one of H.M. Inspectors of Schools.**

34. To obtain a first-class certificate, at least six problems and four propositions must be correctly done; to obtain a second-class, at least four problems and eight propositions.

35. Text Books:—Euclid, Books I., II., III., IV., VI., XI., as far as Prop. 21. Potts' smaller edition (*Parker*). Green's Euclid's Plane Geometry, practically applied, is a useful help to those who are studying by themselves (*Heywood*, Manchester; *Simpkin, Marshall and Co.*, London).

V.—Mensuration.

Examiner.—**John Sykes, Esq., M.A., Assistant-Secretary to the Committee of Council on Education.**

36. The calculation of the areas and circumferences of plane figures bounded by arcs of circles or right lines, and solid contents of cones, cylinders, spheres, &c. Candidates will be expected to be familiar with the different rules for measuring and estimating artificers' work, such as joiners', bricklayers', masons', and plumbers' work, and to be able to prepare estimates of such work from given quantities.

37. Text Books:—Lund's Mensuration, Part III., of his Elements of Geometry and Mensuration. Tate's Mensuration. Young's Treatise on Mensuration (*Simms and M'Intyre*).

38. The Examiner, in referring to last year's papers, complains of the "want of due attention to the elements of the subject," and says of the candidates that "in the geometrical part their work is satisfactory, but in the arithmetical part it is not."

VI.—Trigonometry.

Examiner.—**Rev. T. G. Hall, Professor of Mathematics in King's College, London.**

39. In Plane Trigonometry, the formulas for the trigonometrical functions of angles, the numerical solution of plane triangles, the use of logarithmic tables, and angular and exponential series.

40. Spherical Trigonometry, Napier's Rules, and the Solution of Spherical Triangles.

41. Text Books:—Snowball's or Todhunter's Trigonometry, Hall's Trigonometry for Schools for Spherical Trigonometry (*Christian Knowledge Society*), or any other of the modern treatises on Trigonometry. Mathematical Tables (*Chambers' Series*).

VII.—Conic Sections.

Examiner.—**Rev. Bartholomew Price, M.A., F.R.S., Sedleian Professor of Natural Philosophy in the University of Oxford.**

42. The properties of the three curves treated geometrically; also as deduced from the cone. The principles of projection, orthogonal and central, applied to derive the properties of the conic sections from those of the circle.

43. Analytical Conics, including the equations of the straight line, the circle, the three conic sections, and the general equation of the second degree.

44. Text Books: Drew's Conic Sections (*Macmillan.*) Taylor's Conic Sections (*Macmillan*). Salmon's Conic Sections (*Longmans*). Todhunter's Conic Sections (*Macmillan*).

45. ⁂ Notwithstanding the small number of candidates that have appeared in this subject for several years past, the Council are unwilling to remove it from the list, on account of its practical value, especially to workmen employed in cutting wood and stone, and in the arts of construction generally, but no paper will be prepared in it this year, unless information should be received, before the 1st January, 1866, that several candidates are desirous of being examined in it.

VIII.—Navigation and Nautical Astronomy.

Examiner.—**Rev. Joseph Woolley, LL.D., one of Her Majesty's Inspectors of Schools.**

46. A good knowledge of Plane and Spherical Trigonometry, of the definitions and terms used in Nautical Astronomy, and of the various measurements of time and their mutual conversions will be required, as well as skill in the use of logarithmic tables, and neatness, order, and accuracy in the numerical solutions of problems.

47. The candidate should understand the construction of charts; the nature and laws of circular storms; great circle sailing, &c.; the methods of determining the latitude, longitude, variation of the compass, and error and rate of a chronometer by astronomical observations, with the demonstrations of the formulæ employed; the use of nautical astronomical instruments, &c.

48. Text Books:—The Nautical Almanac (*Murray.*) Riddle's Navigation and Nautical Astronomy (*Law*, Essex-street.)

49. N.B. Candidates in this subject should be allowed theuse of the Nautical Almanac and Tables *during the Examination.*

IX.—Principles of Mechanics.

Examiner.—**Rev. Jonathan Bates, M.A., Fellow of Gonville and Caius College, Cambridge.**

50. The properties of matter, solid, fluid, and gaseous.

51. Statics: The composition, resolution, and equilibrium of pressures acting on a material particle, and on constrained particles; machines; attractions.

52. Dynamics: the laws of motion; impact; projectiles; constrained motion; central forces; oscillation.

53. Rigid Dynamics: Motion of a rigid body about a point;—of a free rigid body;—of a system of rigid bodies.

54. Hydrostatics: Pressures of fluids; equilibrium of floating bodies; specific gravity; elastic fluids; machines; temperature and heat; steam; evaporation.

55. Hydrodynamics: Motion and resistance of fluids in tubes, &c.; waves and tides.

56. Pneumatics: Mechanical properties of air; the barometer, and other machines illustrating the mechanical properties of air.

57. Text Books:—Todhunter's Statics, or Parkinson's Mechanics. Goodwin's Mathematics. Miller's, Phear's, or Besant's Hydrostatics. Webster's Theory of Fluids.

The treatise on this subject in Orr's Circle of the Sciences. Golding Bird's Elements of Natural Philosophy, by C. Brooke (*Churchill*). Lardner's Handbooks on Natural Philosophy.

58. The Examiner, in referring to last year's candidates, regrets "a want of clearness and perspicuity, which spoils the effect of the results," and adds "a word of caution to the candidates as to more earnest effort to secure method, well-digested arrangement, and neatness in their papers."

X.—Practical Mechanics.

Examiner.—T. M. Goodeve, Esq., Professor of Mechanics at the Royal Military Academy, Woolwich.

59. The applications of the Principles of Mechanism to Simple Machines. The Steam Engine.

60. Text Books:—Bourne's Catechism of the Steam Engine (*Longmans*). Scott Russell on the Steam Engine. Nasmyth's Elements of Mechanism, with remarks on Tools and Machinery (*Weale*). Goodeve's Elements of Mechanism (*Longmans*).

XI.—Electricity and Magnetism.

Examiner.—Charles Brooke, Esq., M.A., F.R.S., Surgeon to the Westminster Hospital.

61. Construction and Properties of Magnets; Magnetic Instruments; Terrestrial Magnetism; Diamagnetism.

62. Statical or Franklinic Electricity; Voltaic Electricity; Electro-dynamics; Electro-telegraphy; Electro-metallurgy; Thermo-Electricity; Organic Electricity.

63. Text Books:—Golding Bird's Elements of Natural Philosophy, by C. Brooke (*Churchill*). Lardner's Handbooks of Natural Philosophy (*Walton and Maberly*). Fleeming Jenkin's report on the Electrical Instruments in Class XIII. of the Exhibition of 1862, for Electro-telegraphy. Herschel's Discourse on the Study of Natural Philosophy (*Longmans*) for a *general* view of the subjects.

64. The Examiner, in his last year's report, observes, that "the mariner's compass, its construction, its deviations, and the most practicable methods of correcting the errors therein arising, does not yet appear to command the attention of advanced students to the extent the subject is entitled to, considering the present vast and increasing importance of iron in marine architecture."

XII.—Light and Heat.

Examiner.—Richard Potter, Esq., A.M., late Professor of Natural Philosophy and Astronomy in University College, London.

65. What is the sense of sight?—ancient theories—modern definitions and hypotheses of the nature of light—the especial privileges of animals which possess organs of vision—the simple laws or properties of light required to be known before we can discuss the structure of the eye, and the construction of telescopes, microscopes, and other optical instruments—optical images real and virtual—how do they occur in optical instruments.

66. Why do we distinguish between Physical and Geometrical optics?—what are double refraction of light—polarization of light—interference of light—examples of these properties, how shown—phenomena of recurring colours—examples—how are explained the colours of the soap bubble—the colours seen on looking towards a light through the feathers of small birds—the colours of mother of pearl—the rainbow, &c., &c.—the laws of the interference of polarized light—to describe cases of these splendid phenomena.

67. What are the definitions of heat, radiant, latent, and sensible?—what is meant by caloric?—hypotheses of the nature of heat—capacity of bodies for heat—the temperature of bodies—how measured by instruments—descriptions of thermometers and pyrometers—the scales of thermometers—how compared—how the volumes of solids, liquids, and gases, depend on their temperature—absolute zero of cold—elastic force of vapours and gases produced by heat employed in steam and air engines—winds from the unequal heat of the atmosphere. What are the connexions and analogies of heat and light?

68. Text Books:—The Library of Useful Knowledge. Brewster's Optics (Cabinet Cyclopædia). Potter's Physical Optics, the descriptive and experimental treatise (or first part) (*Walton and Maberly*).

XIII.—Chemistry.

Examiner.—A. W. Williamson, Esq., F.R.S., Professor of Chemistry, University College, London.

69. Preparation and properties of the chief gases, acids, bases, and salts. Laws of combining proportion by weight and by volume. Analytical processes for the detection and separation of metals, acids, &c. Preparation and distinctive properties of the chief kinds of alcohol, of organic bases, fixed and volatile organic acids, sugars, woody-fibre, starch, &c.

70. Candidates are expected to be able to explain chemical reactions by the use of symbols. Questions illustrative of general principles will be selected from the following, amongst other manufactures: Metallurgy of Lead, Iron, and Copper; Bleaching, Dyeing, Soap-boiling, Tanning; the manufacture of Coal-Gas, Sulphuric Acid, Soda-Ash, &c.

71. Text Books:—Miller's Elements of Chemistry. Williamson's Elements of Chemistry (will appear in October, 1865).

XIV.—Mining and Metallurgy.

Examiner.—J. Arthur Phillips, Esq., Civil Engineer, Graduate of the Imperial School of Mines of France, &c.

72. Candidates should be able to identify with facility the ores of the more common metals, and be acquainted with their chemical composition. They should also be familiar with the forms of occurrence of the various metallic ores, and the usual methods employed for their extraction and subsequent purification by crushing, stamping, washing, &c. Underground surveying, the principles of ventilation, particularly as applicable to collieries; a knowledge of furnace assaying, and a general acquaintance with the metallurgy of the more important metals are also required.

73. First-class certificates can be given to those only who have either acquired some practical knowledge of mining, or who possess a special acquaintance with the metallurgy of at least one of the useful metals.

74. Text Books:—Dana's Mineralogy (*Trubner and Co.*, Paternoster-row). Mitchell's Assaying (*Baillière*). Manual of Metallurgy (*Griffin*). Useful metals and their Alloys (*Houlston and Wright*). Ure's Dictionary of Arts, Manufactures, and Mines (*Longmans*). Percy's Metallurgy (*Longmans*). Metallurgy of Iron, Truran (*Spon*).

XV.—Botany.

Examiner.—Daniel Oliver, Esq., F.R.S., F.L.S., Keeper of the Herbarium at the Royal Gardens, Kew, and Professor of Botany in University College, London.

75. Sect. I.—The Structure of Plants and Vegetable Physiology. The Functions of the Various Organs, and their Morphological Relations. The Nature of the Principal Tissues. The Meaning of Botanical Terms. The application of Structural and Physiological Facts to Practical Purposes.

76. Sect. II.—Systematic Botany. The general principles upon which the Classification of Plants is based. The distinctive characters of the principal British Natural Orders of Plants. Naming Common Wild Flowers at Sight. The sources of the most important Economic Vegetable Products:—Timbers, Fibres, Fruits, Drugs, &c.

77. Section III.—Descriptive Botany. The Art of Describing Plants Correctly in Scientific Language.*

78. Text Books:—Lindley's School Botany (*Bradbury and Evans*); Oliver's Lessons in Elementary Botany (*Mac-*

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* Living plants are provided by the Society for this examination.

millan); Lindley's Theory and Practice of Horticulture (*Longmans*); Oliver's Guide to the Kew Museums (pamphlet) (*L. Reeve and Co.*).

79. Candidates will be expected to return three correct answers to questions in Section I., three in Section II., and at least two of the plants must be described and referred to their respective natural orders in Section III.

80. Students are very strongly recommended to the frequent practice of describing plants; at first on forms or "schedules," as given in Professor Oliver's "Lessons," page 59, and, when sufficiently advanced, in detail, as in the examples given at page 293 of the same work, and in Dr. Lindley's "School Botany."

81. The Examiner observes:—"All candidates would do well to handle living plants frequently, dissecting and describing them as they go on, in accordance with the examples given in the works recommended to them as text-books."

XVI.—Floriculture.

Examiner—**Thomas Moore, Esq., F.L.S., Botanic Gardens, Chelsea.**

82. The candidates will be expected to answer questions on any of the undermentioned subjects:—

83. The leading Flowers of the different seasons, indicating those to be obtained naturally, and those by artificial means. Leaf Buds and Flower Buds, the conditions favourable to their development respectively. Food of Plants, how and whence derived, and in what form received. Manuring, substances best adapted for Flower Culture.

84. Improvement of Races in Plants, how has it been effected, and by what means can it be carried forward? Hybridization, objects and guiding principles of. Conditions necessary to ensure fertility in Flowers.

85. Construction of Houses for Plant Culture. Warming and Ventilation. Influence of Ventilation on Plants confined in forcing houses. Limits of Temperature endurable by Plants, and how to turn this to advantage in Practical Floriculture. Bottom heat, value of in Plant Culture. Watering, the *rationale* of—what to avoid. Liquid Manures.

86. Propagation, the various modes of, and their special adaptations. Germination of seeds, conditions favourable and unfavourable to. Vitality of seeds, duration of, and how best preserved. Treatment of Seedling Plants. Budding, Grafting, and Inarching, how performed, and to what subjects best adapted. Increase by cuttings and by layers. Leaf-cuttings, how is it that they can organize buds? Potting. Composts.

87. Acclimatisation. Is it possible to increase the hardiness of any race of plants, and by what means?

88. Text Books:—Lindley's Theory and Practice of Horticulture (*Longmans*), McIntosh's Book of the Garden (*Blackwood and Sons*), Thompson's Gardener's Assistant (*Blackie and Son*).

XVII.—Fruit and Vegetable Culture.

Examiner—**Robert Hogg, Esq., LL.D.**

89. Sect. I.—*Fruit-Tree Culture.*—Kinds of Fruits adapted for various soils and exposures. The Propagation, Pruning, and Training of Fruit Trees. The Forcing of Fruit Trees, and their cultivation under glass, both in and out of pots. The Theory of Ripening, and the principles that ought to regulate the preservation of fruits after they are ripe or their subsequent maturation. The Packing of Fruit for transmission to great distances.

90. Sect. II.—*Vegetable Culture.*—The kinds and quantities of vegetable seeds and roots required for cropping gardens of given dimensions. The culture of the different kinds of vegetables and salads. The preparation of fermenting materials for artificial heating. The forcing of vegetables and salads.

91. Sect. III.—*General Subjects.*—Soils, Water, Atmospheric Air, Light and Heat in their relation to the successful cultivation of Fruit and Vegetables. Manures and their application. The Diseases and Insects to which Fruit Trees and Vegetables are subject and their remedies. The Structure and Functions of the Organs of Plants, considered in their relation to growth and reproduction. The erection, heating, and ventilation of garden structures.

92. Text Books:—Loudon's Suburban Horticulturist. Johnson's Cottage Gardener's Dictionary (*Bohn*), Hogg's Fruit Manual (171, *Fleet-street*).

XVIII.—Animal Physiology in Relation to Health.

Examiner.—**John Marshall, Esq., F.R.S., F.R.C.S., Surgeon to the University College Hospital, and Lecturer on Anatomy at the Government Department of Science and Art.**

93. The general principles of Animal Physiology, and the application of them to the preservation of health and to the wants and emergencies of daily life.

94. Text Books:—Carpenter's Animal Physiology, 1859 (*Bohn*). Mapother's Physiology and the Principles of Disease (*Longmans*). Mapother's Lectures on Public Health (*Longmans*). Lardner's Animal Physics (*Walton and Maberly*) Translation of Milne Edwards' Manual of Zoology (*Renshaw*). Marshall's Descriptions of the Human Body, with Atlas (*Day and Son*), for details of Anatomy.

95. The Examiner, in a very elaborate report on the last examination, describes a large proportion of the rejected candidates as "immature students, even of their own language, prematurely offering themselves for an examination in so special a subject as Physiology." He gives lists of their numerous errors in spelling and in the use of scientific terms, and speaks of the "inaccuracies, the confusion of thought and expression, and the bad grammar, punctuation, and orthography, illustrated by the examples of errors" given by him.

XIX.—Domestic Economy.

Examiner.—**The Very Rev. Richard Dawes, Dean of Hereford.**

Questions for Male and Female Candidates.

96. Domestic Economy being mainly based on the applications of Chemistry and Physiology, both male and female candidates will be required to show an acquaintance with the rudiments of these sciences. It should embrace the phenomena of nutrition, respiration, the functions of the skin, &c.; the rationale of lighting, warming, ventilating, cleaning, disinfecting, &c.; of cooking, preserving, &c.; and the origin and manufacture of household articles, as far as this may be necessary for a correct appreciation of their relative value for use, and for the detection of defective quality, adulteration, or fraud.

97. The essentials of a healthy and comfortable dwelling—clothing in relation to sanitary principles—food, animal and vegetable. Dietaries. Effects of stimulants and narcotics. Fuel and other household stores. Weights and measures. Keeping of household accounts.

Questions for Male Candidates only.

98. Materials and appliances involved in the construction of dwellings. Co-operative Building and Investment Societies. Mutual Provident Societies for various purposes. Savings Banks. Present and deferred annuities.

Questions for Female Candidates only.

99. The management of infants. The care of the sick, &c.

100. Text Books:—For Introductory Scientific Knowledge:—Laws of Matter and Motion (Chambers' Educational Course) (*Chambers*). Mechanics of Familiar Things, by Thomas Tate (*Longmans*). Experimental Chemistry, by Thomas Tate (*Longmans*). Physiology for Schools, by Mrs. C. Bray (*Longmans*). For Domestic Economy in general:—A Manual of Domestic Economy, by Tegetmeier (*Home and Colonial School Society*). Household Economy, by Margaret Brewster (*Constable and Co.*). Domestic Economy (Gleig's School Series) (*Longmans*).

XX.—Political and Social Economy.

Examiner.—Charles Neate, Esq., M.A., M.P., late Professor of Political Economy in the University of Oxford.

101. The examination will be devoted to the study of Civil Government and Social Economy, as set forth in the 3rd and 4th books of Stephens' Commentaries on the Laws of England. N.B.—In order to meet the question of expense as regards this work, candidates are informed that the earlier editions, which are obtainable at a reduced price, may be used, so long as they are not earlier than the 3rd edition.

102. Professor Fawcett's Manual of Political Economy must be studied by those who desire to obtain first-class certificates.

XXI.—Geography.

Examiner.—Wm. Hughes, Esq., F.R.G.S., Professor of Geography in King's College, London.

103. Candidates must show a sound knowledge of Elementary Geography, physical and descriptive. Such knowledge must embrace an acquaintance with at least the outlines of the great natural features of the globe, the political divisions of countries, and the localities of towns and other places of importance. This knowledge will be looked for in fuller extent with regard to the British Islands, and the various portions of the British Empire, than with regard to other countries. The growing importance of the colonial and foreign dependencies of Britain renders a knowledge of their geography now more than ever necessary. The Australian colonies, New Zealand, and British India, are hence proposed as subjects for more especial study on the part of the intending candidates for the ensuing year's examinations, and their attention is directed to them accordingly. In evidence of the knowledge possessed regarding those regions, the candidate will be required to sketch, from memory, a map of any one of the Australian colonies that may be named by the examiner. Such sketches need not possess accuracy of detail, but should at least show the general direction of coast-lines, mountain-chains, or river-courses, with the localities and names of the principal towns.

104. Candidates who aim at the highest class of certificate should be also prepared to answer such questions upon Geography in its relation to the Physical Sciences and the History of Mankind, as involve a general acquaintance with the subject of Climate, the laws of Meteorology, the Distribution of Plants and Animals over the Globe, the leading outlines of Geology, the Ethnographic Division of the Human race, and the commercial resources of different lands. This kind of knowledge is looked for, not in place of geographical knowledge of a more elementary kind, but as supplementary to it, and throughout based upon it.

105. Text Books:—Manual of Geography, by William Hughes (*Longmans*). Geography of British History, by William Hughes (*Longmans*). Guyot's Earth and Man (*Parker and Son*). Page's Introductory Text Book of Geology (*Blackwood*). The School Physical Atlas (*either Johnstone's, Philips's, or that published by the National Society*).

XXII.—English History.

Examiner—(Will be appointed.)

106. English History and English Constitutional History. Text Books:—The Student's Hume. Creasy's Rise and Progress of the English Constitution.

107. Special subject:—The reigns of John and Henry III. Text Books:—Lingard; and Blaauw's Barons' War.

108. The Examiner repeats the suggestion made last year "that candidates should practice themselves in answering questions on papers for their tutors from time to time."

XXIII.—English Literature.

Examiner.—Rev. Samuel Clark, M.A., *Chairman of the Board of Examiners.*

109. Any two, but not more than two, of the authors in the following list may be taken up for examination:—

Chaucer.—The Prologue to the Canterbury Tales.
Shakspeare.—King Lear; Richard III.; As You Like It.
Bacon.—Essays.
Trench.—On the Study of Words.

110. Candidates are recommended to make a very careful study of the text of the authors they may select. The questions on each author will be divided into two sections, the first intended to test the candidate's acquaintance with the text, the second his knowledge of the subject-matter and his critical and literary information. Full marks will not be given for answers in the second section, if those in the first section do not prove satisfactory.

111. The Examiner, referring to the last examination, says:—" Two or three of the candidates have wasted their time in making imperfect, though tedious, grammatical analyses of the passages contained in the questions," He adds:—" It should be understood that no marks can be given for anything beyond an answer to the examiner's questions."

XXIV.—Logic and Mental Science.

Examiner.—J. D. Morell, Esq., LL.D., one of her Majesty's Inspectors of Schools.

112. Logic: Candidates will be expected to answer questions on the different processes of thought, and the symbols by which they are expressed. Every Candidate must be prepared to analyse examples of reasoning, and to detect fallacies.

113. Text Books:—Whateley's Elements of Logic, or Thomson's Outline of the Laws of Thought.

114. A Candidate for a second or third-class Certificate will be expected to prepare, in addition, any one of the following books which he may select:—Mill's System of Logic, Book III., of Induction; Sir James Mackintosh's Dissertation on the Progress of Moral Philosophy; or a Manual of Moral Philosophy, by W. Fleming, D.D. (Glasgow). Brown's Lectures on the Philosophy of the Human Mind (first 50 Lectures), or Sir W. Hamilton's Lectures on Metaphysics.

115. A Candidate for a first-class Certificate will be expected to prepare any two of these works which he may select.

XXV.—Latin and Roman History.

Examiner.—Rev. F. Temple, D.D., Head Master of Rugby School.

116. Livy, Book I. Virgil; Georgics, Book IV.

117. Roman History to the death of Augustus Cæsar. Text Book:—Liddell's History of Rome, in one volume.

XXVI.—French.

Examiner—Alphonse Mariette, Esq., M.A., Professor of French, King's College, London.

118. The Examination paper will be divided into three parts.

119. The first will comprise grammatical questions and an extract from a modern French writer, to be translated into English. Candidates merely aiming at a 3rd class certificate should confine themselves to this first part.

120. The second part will comprise, together with a few grammatical questions, an English extract to be translated into French, and a list of idiomatic expressions to be rendered from French into English, or *vice versâ*. This should be done satisfactorily by the candidate who aims at a 2nd class certificate.

121. In the third part, candidates for a 1st class certificate will have to translate an English extract into French (to which great importance is attached), and to answer properly (*in French*) some *elementary* questions on the two following subjects:—

1. French literature during the reigns of Louis XV. and Louis XVI.
2. The History of France, from the Treaty of Aix-la-Chapelle, to the Revolution (1748 to 1789).

122. Books recommended:—Mariette: Half-Hours of French Translation (*Williams and Norgate*, London and Edinburgh). Nisard: Histoire de la Littérature Française, vols. 3, 4 (*Williams and Norgate*). Duruy: Histoire de France, vol. 2 (*Williams and Norgate*).

XXVII.—GERMAN.

Examiner.—**Dr. Wintzer, Teacher of German in King's College, London.**

123. The examination paper will consist of three sections. The first will contain extracts or questions from the works recommended for reading; the second grammatical questions and idioms; and the third English phrases; an extract from an English author (both to be turned into German); questions on a certain period of the history and literature of Germany; and a theme to be worked out in German.

124. Each Candidate must translate at least one of the extracts in section 1. First-class Certificates will be given to those only who translate well from English into German, answer in German the few questions on the literature and history of Germany, and write a well-expressed essay on a subject which will be announced to them when they come up for examination.

125. Books recommended:—*Schiller's* Abfall der Niederlande (2^{tes} u. 3^{tes} Buch), Wilhelm Tell; *Goethe's* Tasso; *Kohlrausch's* Deutsche Geschichte (Vierter Zeitraum), and Vilmar's Geschichte der deutschen National-Literatur (Alte Zeit, dritte Periode vom Jahre 1517—1624).

126. The Examiner, referring to last year's candidates, says:—"Some of those who have written the essay sometimes deviate from the point in question. A stricter keeping in view of the subject to be handled, and a more logical method of arranging the matter, ought in future to be aimed at."

XXVIII.—ITALIAN.

Examiner.—**Signor V. Pistrucci, Professor of Italian in King's College, London.**

127. Candidates for first-class certificates will be required to translate into English selections from the following works:—Dante, L'Inferno; Petrarca, Trionfo del Tempo; Tasso, La Gerusalemme Liberata; Alfieri, Saul and Filippo; Monti, Cajo Gracco. They must also translate into Italian an extract from some English author; answer some grammatical questions; and give the proper or approximate English equivalents for a certain number of Italian idioms.

128. Candidates for second and third-class certificates will be required to translate into English selections from the following modern prose writers—Foscolo, Botta, and and Manzoni; and to answer some grammatical questions.

XXIX.—SPANISH.

Examiner.—**B. B. Aguirre, Esq., Lecturer on Spanish in King's College, London.**

129. Candidates for a first-class certificate will have to translate an English passage into Spanish, to render into English or French several idiomatic phrases, and to write in Spanish a short essay.

130. Candidates for a second-class certificate will have to translate from English into Spanish, and to answer several questions upon the Spanish verbs.

131. Candidates for a third-class certificate will have to translate from Spanish into English, and to answer several grammatical questions.

132. Books recommended:—Spanish Gil Blas; Conquista de Mejico, por Dn. Jose Morales Santistevan; Trozos escojidos delos mejores hablistas espanòles, por Dn. Carlos Ochoa; Estudios filolójios, por Dn. Manuel Martinez de Morentin.—Don Quixote translated into English by Charles Jarvis, Esq.

133.—The Examiner, referring to the last examination, says:—"Most of the candidates have tried for a higher certificate than their knowledge of Spanish seems to warrant, and a few only have complied with the requirements."

XXX.—FREEHAND DRAWING.

Examiner.—**F. S. Cary, Esq.**

134. In freehand drawing the Candidate will be required to show a practical knowledge of the principles usually applied in the imitation of natural and artifical forms, such as furniture, manufactured articles, ornament, foliage, and the human form.

XXXI.—GEOMETRICAL DRAWING.

Examiner.—**Thomas Bradley, Esq., Professor of Geometrical Drawing in King's College, London, and of the Royal Military Academy, Woolwich.**

135. Practical Geometry, or Geometrical Drawing, required by the Mechanist, Engineer, Builder, and all in any way employed in the arts of construction. The Candidate will be examined in Practical Plane Geometry, the construction of right line figures of given areas, and of curved lines required in the arts, &c.,; in Practical Solid Geometry, Elementary Problems on the line and plane, in space, and their combinations, the representation by orthographic projection of simple solids from conditions, and in the principles of Development as used in the construction of Maps, &c.; and in the Elementary Perspective Projection as far as it is required by the Architect.

136. Text Books:—Geometry, Plane, Solid, and Spherical (*Library of Useful Knowledge*) is especially recommended as a work to be studied on Theoretical Geometry.—Elements of Geometrical Drawing, published by the Committee of Council on Education, 2 parts (*Chapman and Hall*).—Hall's Elements of Descriptive Geometry for Students in Engineering. Heather's Descriptive Geometry. Also the following French Works:—Elémens de Géométrie Descriptive, par S. F. Lacroix; Traité de Géométrie Descriptive, par Lefebure de Fourcy; Nouveau Cours raisonné de Dessin Industriel, par Armengaud, aîné, et Armengaud, jeune, et Amouroux; Bardin's Works on Descriptive Geometry.

137. The Examiner, speaking of those candidates who failed on the last occasion, mentions the apparent causes of these failures as—"1st. A neglect of the conditions of the questions, either arising from carelessness in reading them, or from misconception of their import; 2. Neglect of the repeated injunction not to attempt more than the prescribed time allows of being carefully and thoughtfully accomplished; 3. A want of knowledge of the elements of solid or co-ordinate geometry, causing a great loss of time by compelling the candidate to adopt complicated and circuitous constructions instead of the brief and simple ones based on sound elementary knowledge."

XXXII.—THEORY OF MUSIC.

Examiner.—**John Hullah, Esq.**

138. Notation, the modern modes, intervals, time, signatures, the stave, transposition, modulation, terms, and characters in common use.

139. The Elements of Harmony.

140. Musical History and Biography.

141. Arrangements must be made, in the Previous Examinations by the Local Boards, to test Candidates, by oral examination, in their knowledge or appreciation of the *sound* of musical successions and *combinations*. A form of the test to be used for this purpose by the Local Board at the Previous Examination, will be sent by the Council to such Local Boards as may *apply for it*, in due time before the Examination.

142.—The Examiner, referring to the last examination, says:—"Of the few candidates who have not passed, the failure is attributable (as on former occasions) to their having attempted the harmony and counterpoint questions with insufficient or no preparation, to the neglect of those questions which possibly they might have answered correctly."

PRIZES FOR 1866.

THE PRINCE CONSORT'S PRIZE.

143. His Royal Highness the late President of the Society was pleased to offer annually to the candidate who, obtaining a certificate of the first-class in the current year, shall have obtained in that year and the three years immediately preceding it, the greatest number of such certificates, a Prize of Twenty-five Guineas, and this Prize Her Majesty the Queen has graciously intimated her intention to continue. This Prize cannot be taken more than once by the same candidate. It will be accompanied by a certificate from the Society of Arts, setting forth the special character of the Prize, and the various certificates for which it was granted.

144. In addition to the Prizes in Botany offered by the Society of Arts to candidates taking certificates of the First Class, the Council of the Royal Horticultural Society offers three additional Prizes of £5, £3, and £1 respectively to the three candidates being *bonâ fide* professional Gardeners, who, taking any grade of certificate in Botany, obtain the highest number of marks in that subject.

145. In addition to the Prizes in Floriculture, and in Fruit and Vegetable Culture, offered by the Society of Arts to candidates taking certificates of the First Class, the Proprietors of the *Gardener's Chronicle* offer three additional Prizes of £3, £2, and £1 respectively, for the three candidates, being *bonâ-fide* professional Gardeners, who, obtaining a Second-class certificate, at least, in Floriculture, or Fruit and Vegetable Culture, shall obtain the highest number of marks in one of these subjects, and also a Second-class certificate, at least, in Book-keeping or Mensuration.

GENERAL PRIZES.

*** None of these Prizes will be awarded to a Candidate who does not obtain a Certificate of the first-class in the subject.

1. Arithmetic	First Prize, £5. Second Prize, £3.
2. Book-keeping	First Prize, £5. Second Prize, £3.
3. Algebra	First Prize, £5. Second Prize, £3.
4. Geometry	First Prize, £5. Second Prize, £3.
5. Mensuration	First Prize, £5. Second Prize, £3.
6. Trigonometry	First Prize, £5. Second Prize, £3.
7. Conic Sections	First Prize, £5. Second Prize, £3.
8. Navigation and Nautical Astronomy	First Prize, £5. Second Prize, £3.
9. Principles of Mechanics	First Prize, £5. Second Prize, £3.
10. Practical Mechanics	First Prize, £5. Second Prize, £3.
11. Electricity and Magnetism	First Prize, £5. Second Prize, £3.
12. Light and Heat	First Prize, £5. Second Prize, £3.
13. Chemistry	First Prize, £5. Second Prize, £3.
14. Mining and Metallurgy	First Prize, £5. Second Prize, £3. Additional by Gift of Sir Thomas Phillips, F.G.S:— Third Prize, £2; and Three Prizes of Books, value £1 each.
15.*Botany	First Prize, £5. Second Prize, £3.
16.*Floriculture	First Prize, £5. Second Prize, £3.
17.*Fruit and Vegetable Culture	First Prize, £5. Second Prize, £3.
18. Animal Physiology (in relation to Health)	First Prize, £5. Second Prize, £3. Additional by Gift of Harry Chester, Esq.:— Third Prize, £2; and Three Prizes of Books, value £1 each.
19. Domestic Economy	First Prize, £5. Second Prize, £3.
20. Political and Social Economy	First Prize, £5. Second Prize, £3.
21. Geography	First Prize, £5. Second Prize, £3.
22. English History	First Prize, £5. Second Prize, £3.
23. English Literature	First Prize, £5. Second Prize, £3.
24. Logic and Mental Science	First Prize, £5. Second Prize, £3.
25. Latin and Roman History	First Prize, £5. Second Prize, £3.
26. French	First Prize, £5. Second Prize, £3.
27. German	First Prize, £5. Second Prize, £3.
28. Italian	First Prize, £5. Second Prize, £3.
29. Spanish	First Prize, £5. Second Prize, £3.
30. Freehand Drawing	First Prize, £5. Second Prize, £3.
31. Geometrical Drawing	First Prize, £5. Second Prize, £3.
32. Theory of Music	First Prize, £5. Second Prize, £3.

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* For extra prizes in these subjects see above.

LOCAL EDUCATIONAL BOARDS.

The following is a List of the places at which Local Boards have already been formed, with the names of the Secretaries, from whom intending Candidates and others may obtain information relative to the Examinations:—

Local Boards.	Secretaries.
Aberdeen	Mr. James Sinclair, Mechanics' Institution, Aberdeen
Aldershot and Farnham District	Mr. Barrow Rule, M.C.P., Principal of the Classical and Mathematical School, Aldershot.
Alton	Mr. T. Bryant.
Ashford	Mr. T. Nesbit, 3, Dover-place, Ashford.
Banbridge (Ireland) Literary and Mutual Improvement Society	Mr. Alexander Black, Banbridge, County Down, Ireland.
Banbury	Mr. John H. Beale, Banbury.
Barnet	Mr. John Thimbleby, Barnet.
Belfast	Mr. F. A. Maitland, People's Reading Rooms, Belfast.
Birmingham and Midland Institute	Mr. Thos. Martineau, Solictor, Cannon-st., Birmingham
Bishop's Stortford	Mr. F. Woodham Nash, B.A., Sion House, Birchanger, Bishop's Stortford.
Blandford	Mr. J. B. Green, Architect, &c., Salisbury-street, Blandford.
Bradford	Mr. James Simpson, Mechanics' Institution, Bradford
Brighton (for Sussex	Mr. Barclay Phillips, 75, Lansdowne-place, Brighton.
Bristol	Mr. F. W. Cross, Athenæum, Bristol.
Bury St. Edmund's	Mr. John Jackson, Head Master of the Commercial School, Bury St. Edmund's.
Canterbury	Mr. W. D. Furley, Canterbury.
Carlisle Mechanics' Institute	Mrs. Jane Williamson, Mechanics' Institute, Carlisle.
Chatham, Rochester, Stroud, and Brompton	Mr. F. Butler, 112, High-street, Chatham.
Chelmsford	Mr. W. Cutts and Mr. Jesse Garrood, Chelmsford.
Darlington	Mr. F. T. Steavenson, Darlington.
Deptford	Mr. T. Earland, 2, Wellington-grove, Greenwich-road.
Derby	Mr. H. M. Holmes, Hon. Local Sec. to the Society of Arts, London-road, Derby.
Devonport	Mr. W. Mogg and Mr. Samuel Chapple, Mechanics' Institute, Devonport.
Faversham	Mr. Frederick W. Monk, Managing Director of the Faversham Institute.
Gilford (Ireland) Young Men's Mutual Improvement Society	Dr. Henry McBride, M.D., Gilford, Co. Down, Ireland.
Glasgow Athenæum	Mr. John Allan, 13, Queen-street, Glasgow.
Glasgow Institution	Mr. John Craig, F.E.I.S., Glasgow Institution, 37, Cathedral-street, Glasgow.
Glasgow Mechanics' Institution	Mr. J. McDougall, 27, Stanhope-street, Glasgow.
Glasgow Popular Evening Classes, Andersonian University	Mr. Geo, Martin, 11, Gt. Western-road, Glasgow.
Gosport and Alverstoke Lit. and Sci. Institution	Mr. William Short, 56, High-street, Gosport.
Greenwich	Mr. Jas. Spencer, 3, Wintown-place, Greenwich, S.E.
Halifax Working Men's College	Mr. Geo. Gibb, Haley Hill, Halifax.
Hartlepool (West)	Mr. Thos. Preston Brunton, and Mr. John Thomas Belk, Solicitors, West Hartlepool.
Hastings and St. Leonard's	Mr. J. C. Savery, 27, Marina, St. Leonard's.
Hertford	Mr. J. L. Foster, Hertford.
Hitchin	Mr. Joseph Pollard, Highdown, near Hitchin.
Hull	Mr. P. Blackmore, Young People's Institute, Hull.
Ingro-cum-Hainworth	Mr. Jackson, Ingrow-cum-Hainworth.
Ipswich	Mr. Edwin Barrett, 31, Cornhill, & Mr. Herbert Wright, 44, Handford-road, Ipswich.
Knutsford	Mr. G. W. Clarke.
East Lancashire Union of Mechanics' Institutions, Burnley	Mr. John Sutherland, Post-office, Burnley.
„ Haslingden	Mr. J. Binns, Haslingden.
„ Rawtenstall	Mr. T. Thomas, Rawtenstall.
Lancashire and Cheshire Union:—	
(Central Board)	Mr. Thomas Lawton, 3, St. James's-chambers, South King-street, Manchester.
„ Accrington	Mr. W. H. Dewhurst.
„ Ashton-under-Lyne	Mr. D. F. Howorth.
„ Bacup	Mr. Thos. Newbigging, Bacup.
„ Blackburn	Mr. W. G. Prebble.
„ Bolton	Rev. J. Lowe.
„ Bury	Mr. J. Pomfret.
„ Clitheroe	Mr. J. Whitaker.
„ Crewe	Mr. George Lord.
„ Darwen	Mr. Abel Bradbury.
„ Dean Mills	Mr. W. Taylor.
„ Haughton Dale	Mr. J. T. Fallows.
„ Hyde	Mr. W. Gee.
„ Macclesfield	Mr. W. Jeffery, Park-green, Macclesfield.
„ Manchester M.I.	Mr. A. Jawett.
„ Mossley	Mr. Aaron Tetlow, Mossley.
„ Newton Heath	Mr. E. Teggin.
„ Oldham Lyceum	Rev. J. Hodgson.
„ Rochdale Lyceum	Major Fishwick.
„ Salford	Mr. W. Noar.
„ Stayleybridge	Mr. E. B. Newton.
„ Tottington (Bury)	Mr. J. Greenhatch.
Leeds Young Men's Christian Association	Mr. W. H. Smith, Y. M. Christian Assoc., Leeds.
Leicester	Rev. D. J. Vaughan, St. Martin's Vicarage, Leicester.
Lichfield	Rev. R. M. Grier, B.A., Lichfield.
Liverpool College	Mr. J. Gregory Jones, College, Shaw-street, Liverpool.
Lockwood	Mr. Alfred Lee, Mechanics' Institution, Lockwood.
London, City of London College, Sussex Hall, London, E.C.	Mr. W. H. Hansen, City of London College, Sussex Hall, Leadenhall-street, E.C.
„ Royal Polytechnic Institution (Limited)	Mr. James Cousens, Royal Polytechnic Institution.
London Metropolitan Association:—	
„ Bayswater	Mr. C. Baker, 15, St. Petersburg-place, Bayswater, W.
„ Clapham	Mr. E. Heller, Clapham.
„ Hackney	Mr. H. Gray, Working Men's Inst., Triangle, Hackney.
„ Lambeth	Mr. T. Heller, Hercules'-buildings, Lambeth, S.
„ Mechanics' Institution	Mr. T. A. Reed, 41, Chancery-lane, W.C.

London Metropolitan Association:—	
„ Notting-hill	Mr. T. Timson, James-street, Notting-hill, W.
„ Paddington	Mr. B. Shaw, Cambridge-square, W.
„ Pimlico	Mr. C. Thompson, Pimlico Literary Institution, Winchester-street, Pimlico, S.W.
„ St. James's, Westminster	Mr. Joseph Randall, 45, Marshall street, Golden-sq. W.
„ St. Stephen's, Westminster	Mr. J. Cawood, St. Stephen's School, Westminster.
„ St. Thomas, Charterhouse, Evening Classes	Mr. G. Phillipson, St. Thomas' Charterhouse School.
„ Spitalfields and Bethnal-green	Mr. T. N. Day, Abbey-street School, Bethnal-green, N.E.
„ Stepney Deanery	Mr. W. F. Ives, St. John's School, Limehouse.
Louth	Mr. Benjamin Crow, Mechanics' Institution, Louth.
Lynn (King's)	Mr. T. Burton, 16, Buckingham-terrace, Lynn.
Newbury	Mr. T. Gurney, Newbury.
Newcastle - on - Tyne Church of England Institute	Mr. Joseph Forster, St. John's School, Newcastle-on-Tyne.
Newcastle-on-Tyne, Mechanics' Institution	Mr. Adam Carse, 18, Mosley-street, Newcastle.
Nottingham	Dr. W. Tyndal Robertson, Nottingham.
Oldham Science School	Rev. Wm. Walters, Middleton-road, Oldham.
Paisley	Mr. Charles Dalton Wason, Teacher, St. George's School, Paisley.
Pembroke Dock	Mr. T. H. Eastlake, H.M. Dockyard, Pembroke Dock.
Peterborough	Mr. C. T. Cotton, Long-causeway, Peterborough.
Poole	Mr. J. S. Rogers, Young Men's Christian Association, Poole.
Richmond	Rev. W. Bashall, A.M., 3, Cambridge - villas, Richmond-hill, S.W.
Ryde	Mr. Benj. Barrow, F.R.C.S., M.B.M.S., Ryde.
Selby	Mr. William Allison, Bank Manager, Selby.
Sheffield	Mr. T. Rowbotham, People's College, Sheffield.
Skipton	Mr. George Kendall, Skipton.
Slough	Mr. James Chapman, Upton-grove, Slough.
Southampton	Mr. W. Johnson, Athenæum, Southampton.
Southern Counties' Adult Education Society	Hon. and Rev. S. Best, Andover.
South Staffordshire Union of Educational Institutes	Mr. J. Jones, The Trindle, Dudley.
„ Bilston	Rev. H. F. Newbolt.
„ Cradley	Rev. J. H. Thompson.
„ Dudley	Mr. J. Stokes, Solicitor, Dudley
„ Handsworth	Mr. G. D. Boyle.
„ Kinver	Mr. T. Bolton.
„ Pensnett	Rev. C. J. Atherton, Pensnett, near Dudley.
„ Smethwick	Mr. F. Talbot, Messrs. Chance's Library, Smethwick.

South Staffordshire Union:—	
„ Stourbridge	Rev. J. W. Grier, Amblecote.
„ Walsall	Rev. A. C. Irvine.
„ Wednesbury	Mr. C. Britten.
„ West Bromwich	Rev. J. Whewell.
„ Willenhall	Mr. J. Bennett.
„ Wolverhampton	Mr. J. N. Langley, Mowbray House, Wolverhampton.
„ Wordsley	Rev. J. Boultbee.
Wakefield	Mr. W. S. Banks, Solicitor, Wakefield.
Warminster	Mr. F. Morgan, Warminster.
Waterford	Mr. James Budd, Thomas-street, Waterford.
Wellingborough	Mr. Thos. S. Curtis, Wellingborough.
Whitby	Mr. W. G. Chiesman.
Wigan	Mr. James Seward, Dicconson-street, Wigan.
Woolwich	Mr. W. D. Keeble, Royal Laboratory, Woolwich.
Worcestershire Union of Educational Institutes	Rev. E. Isaac, Worcester. Mr. F. Marcus, *Organising* Master.
York	Mr. Chas. Cumberland, Inst. of Popular Science, York.
Yorkshire Union:—	
„ Acomb, near York	Mr. T. Copley, Acomb.
„ Calverley	Mr. Alfred Walton.
„ Crossland Moor	Mr. H. Avison.
„ Eccleshill	Mr. B. Baxter, Eccleshill.
„ Eston Mines (Middlesbro')	Mr. W. Spencer, Eston Mines.
„ Farsley	Mr. D. Hainsworth, Farsley.
„ Gisborough	Mr. F. W. L. Graham.
„ Halifax Mechanics' Institution	Mr. A. C. Foster, Solicitor, 1, Westgate, Halifax.
„ Hebden Bridge	Rev. W. Baldwin, M.A., Hebden-bridge.
„ Holbeck	Mr. Geo. Tinker.
„ Hunslet (Leeds)	Mr. W. Cox, Hunslet.
„ Keighley	Mr. C. D. Hardcastle, Keighley.
„ Leeds, Mechanics' Institution	Mr. J. O. Dayson.
„ „ West Riding Educational Board	Mr. Barnett Blake.
„ Middlesbro'-on-Tees	Mr. W. Taylor, Mechanics Inst., Middlesbro'-on-Tees.
„ Ossett	Mr. J. W. Greenwood.
„ Otley	Mr. H. J. Newstead.
„ Queensbury	Mr. W. V. Quarmby.
„ Reeth	Mr. W. Wilkie.
„ Rotherham	Mr. W. Unwin, Currier, Rotheram.
„ Scarborough	Messrs. Thos. Shields and J. Edmond, Mechanics' Institute, Scarborough.
„ Slaidburn (Clitheroe)	Rev. D. Jones, Slaidburn.
„ Stocksbridge (Sheffield)	Mr. H. Robertshaw, Stocksbridge.
„ Stockton-on-Tees	Messrs. T. W. Hornsby and T. Ainsworth, jun.
„ Thirsk	Mr. J. G. Baker, Market-place, Thirsk.
„ Wilsden (near Bradford)	Mr. C. Petty, Wilsden.

The foregoing Programme of Examinations is published in a separate form, and may be had gratis, on application to the Secretary of the Society of Arts; a copy will be forwarded to each Institution and Local Board.

Proceedings of Institutions.

Glasgow Institution.—From the last report it appears that the number of students and scholars attending the classes during 1864-65 was 894, being an increase of 48 over the previous year. That of these the number attending the various classes was as follows:—Mathematics, 27; free-hand drawing, 37; mechanical drawing, 33; practical mechanics, 36; Latin and Greek, 36; French, 67; grammar, composition, and logic, 77; arithmetic and book-keeping, 124; writing, 32; geography, 3; morning classes, 16; phonography, 13; elocution and English literature, 33; elementary evening classes, 99; ladies' evening classes, 40; dancing, 25; and in the juvenile day classes—Middle, 190; lower, 92; advanced, 16; ladies, 4; free-hand drawing, 92; needlework, 14. That 36 came forward to the preliminary examinations of the Society of Arts, of whom 27 passed, but several were under age. Of the juveniles, 58 came forward to the examination of the Local Board; of them 53 passed, and were awarded 16 first-class certificates, 16 second, and 21 third. The following certificates were awarded in the students' classes:—Practical mechanics, 2; elementary arithmetic, 5; arithmetic, 8; writing and its applications, 9; free-hand drawing, 10; book-keeping, 8; Latin, 2; English grammar and composition, 2; logic, 3. The directors have been obliged to give up the premises they have occupied for the last four years, on account of the heavy rent, and consequent expenditure necessary to maintain the Institution, and have removed to the premises it formerly occupied in 63, Cathedral-street. The income for the last two years has been only about £300—this year £302 7s. 6d., and last year £303 1s. 11d., which could not afford £130 a year for rent and standing expenditure at the fees charged; while the raising of the fees would introduce an entirely different class of students for whom ample accommodation is provided in other places in the city; the change of premises has therefore been resorted to. The report concludes by expressing thanks to the Local Board and to Alex. Craig, Esq., artist, London, for his able representation of the Institute at the Society of Arts Conference.

NORTH-EASTERN LONDON EXHIBITION OF ARTS AND MANUFACTURES.

The opening ceremonial of the above exhibition took place on the 16th instant, at the Agricultural Hall. The Organ-gallery was occupied by Mr. G. W. Martin's choir, augmented for this occasion to a thousand choristers.

The Lord Chancellor arrived at three o'clock, accompanied by the Marquis of Salisbury. At the same time came also the Lord Mayor, attended by Alderman and Sheriff Besley and the usual civic retinue. The Archdeacon of London was also present on the platform, with a great number of the manufacturers and employers of the district. The Lord Chancellor was received on his arrival by Mr. King, the chairman of the Committee, and his colleagues, and conducted to the dais, where the simple ceremonial of the day immediately commenced. A procession was formed, including the Lord Chancellor, the Marquis of Salisbury, the Lord Mayor, and the members of the committee, and a complete circuit and careful examination made of the exhibition. After which, on returning to the dais, prayer was read by Archdeacon Hale, and the Lord Chancellor, at the request of the Lord Mayor, declared the exhibition opened. The next proceeding was the singing by the choir of the chorale composed by the late Prince Concert—"Awake my Glory."

The Lord Chancellor addressed a few words to the company. He had, he said, when first asked to preside on that occasion, expressed, in all sincerity, his doubts of his fitness for the task; but subsequently, when he remembered how few of our leading personages were in town at this season of the year, he determined, however reluctantly, to accede to the request of Mr. King. Most of them who heard him were old enough to remember the Exhibition of 1851, which owed its existence to the practical wisdom and judgment of the late Prince Consort. He (Lord Cranworth) must confess that at first he was not very sanguine as to the success of that exhibition, but the result showed how much England and the world were indebted to the illustrious individual with whom it originated. At intervals of four and eleven years that exhibition was imitated by our neighbours across the channel, and then the illustrious originator of the 1851 Exhibition approved the plan of that of 1862. Providence in its inscrutable wisdom prevented his royal highness from witnessing the triumph of this work, but one result was the establishment on a more extended basis of the Kensington Museum—in his judgment a most valuable institution, as enabling the working man to study the best models in the finer mechanical arts. However, it was idle to suppose that the 300,000 working men living in the north-east of London could go to Kensington; indeed, a calculation has been handed to him showing that four visits to Kensington would cost the working man equivalent to two-and-a-half days of his working time. Such being the case, it had been suggested that greater facilities for art studies might be given by the establishment of local museums, and it was the proud distinction of the district in which he then stood that it had taken the initiative in this most important movement. Amongst its population were the makers of horological, philosophical, and photographic instruments; and it was most desirable that they should have within reach such a museum as it was hoped now to establish. In fact, it was an indispensable sequence to free trade; for if we permitted foreign workmen to come in and compete in the English market, it was only fair that the English workman should have the means of studying, and of surpassing, if possible, the points in which his foreign competitor beat him. This could only be done by collecting in a museum specimens of all the artistic workmanship of the world; and, therefore, he trusted the time was not far distant when they would have to open such a collection on the spot where he stood. Another advantage of such a museum, as well as of similar institutions, would be to promote habits of temperance amongst working-men. He was old enough to remember when habits of intemperance were considered to be no disgrace in the very highest ranks of society, whereas now they were completely exploded. He hoped to see similar results amongst working men; but what would lead to them would be, not repressive laws, but the institution of establishments like the present, which would amuse whilst they instructed, and would have the effect of rendering temperance attractive. After one or two further observations, his lordship concluded his address with a Scriptural quotation illustrative of the dignity of labour.

The Marquis of Salisbury followed with a brief expression of thanks to his lordship for presiding, and the proceedings terminated with the National Anthem, sung in full chorus by the entire company.

PARIS UNIVERSAL EXHIBITION OF 1867.

A new feature has appeared in connection with this Exhibition, namely, the introduction of the literary or rather scholastic element. It has not yet taken any definite shape, but it is shadowed forth in a speech delivered by the Minister of Public Instruction, on the occasion of the presentation of the annual prizes to the pupils of the Lycées and Colleges of Paris and Versailles on the 7th instant. M. Duruy says:—

"In eighteen months, the nations will come here from the extremities of the earth to dispute for the palms of peace. A place in that competition will be reserved for you.

"As France will show what she is able to do in industry and arts, it is not right that the University should stand out of that great combat. Let us set forth our education in the full light of day, and in seeing the wise and intelligent direction under which you are placed, the world will recognise, in her tranquil but confident course, the *Alma Mater* that has borne so many generations on her fruitful bosom. I warn you, then, future laureats of the great competition of 1867, that your works, whatever they may be, will be sent to the Committee of the Universal Exhibition. If Germany, England, Italy, and the other powers will do the same, and on the same conditions, we shall see who is in the best course. It is the saying of one of us, of that Gaul mentioned by Livy, who defied the bravest of the Roman army—*Ostendat eventus quæ gens* * * * *Sit melior.*

"The lists are prepared; the prize is ready—for the most worthy! In the spirit of the invocation to the young heroes in ancient times, I say, 'Forward! for the honour of the University and of France.'

"To you, professors and illustrious scholars who surround me, I have something more to say. While the immense edifice is being erected within which are to be collected all the marvels of industry, the Emperor desires to see raised by foreign and able hands another monument, to be occupied by the very genius of France. Sciences, arts, and letters, telling their own progress and history during the last twenty years, showing the theories which they have put forth; the ideas to which they have given birth; the facts which they have discovered and illustrated; the new forms which imagination and art have inherited, in a word, what France has thought set side by side with what she has done, the work of her intellect as well as that of her hands; this will be a grand spectacle, full of interest as regards the past, and full of promise for the future; for the future relies on the past, in order to raise itself still higher, and cannot make good use of the support without well comprehending it.

"Let other nations follow our example in this, and the moral exhibition will be as valuable as the material one, and have the same happy consequences.

"Although language gives in each country a different form to thought, beneath these diversified dresses are the ideas which compose the common stock from which all humanity draws. Has this stock of ideas increased or diminished during the last twenty years? This we shall learn, and the world will thereby see what direction its efforts ought to take for the future. Remember that it was at the Olympic games that the genius of Greece was formed.

"I trust that this appeal to the world, going forth from the bosom of the University of France, may be successful; but, come what may, let us do our duty.

"To work, then, gentlemen! Hasten the completion of what you have in hand, or commence some new labour, in order, if possible, to add another leaf of gold to that crown of honour which, in this moral competition, is, I hope, reserved for France."

The idea is novel; the appeal is a bold one, and it is for the educated world to consider how intellect can take her place amongst the competitors of the Olympic games of 1867.

COLONISATION; ITS ASPECTS AND RESULTS.

By William Stones, Esq.

(*Continued from page* 598.)

Religion.

A review of our colonial system would be incomplete without a notice, however slight, of its bearing upon the religious institutions of the mother country. Most emigrants retain a regard to those religious observances which are to some extent, perhaps, peculiar to this country, hence the Sunday is generally as much regarded, and, I think even more so, than at home as a day of absolute rest from toil. At first one of the settlers may have religious services in his own house, then a special room is obtained and fitted up, next a weather-boarded and shingle-roofed church or chapel is reared, afterwards the extravagance is committed of erecting a brick or stone edifice, and lastly, as the colony progresses, a cathedral church rises in ambitious proportions, built in all sympathetic recollection of the time-honoured, hallowed fanes of the mother country, and anticipations of future colonial glory. Whatever our special religious opinions may be, from a broad point of view it cannot be questioned that the presence of a number of ministers, educated gentlemen from the universities of the old country, married to wives in whom are combined domestic virtue and refinement, is a great advantage to the colonists. The colonial bishops and their clergy not only constitute fresh centres of religious and intellectual activities, but the bishops being recognised heads through whom the moral wants of the colonial dioceses can be definitely and forcibly brought before the home church, assistance is thus more readily obtainable for the various matters within the range of church action.

The objects of this paper do not permit my entering into details, and therefore I must abstain from more than a mere reference to the operations of the Society for the Propagation of the Gospel in Foreign Parts, the Church Missionary Society, and kindred institutions, some devoted exclusively to the colonies, while others include the colonies in their general working. Nor are the communities outside the Church less energetic than the Establishment; the Wesleyan, London, and Baptist Missionary Societies, all devote great attention to our colonies, several of these bodies having special associations for colonial objects; and in the utmost recesses of her Majesty's dominions the earnest pastors of each and all of the religious communities may be found zealously attending to the spiritual and moral needs of their charges. Circumstances frequently induce or require some of these educated men to devote a portion of their time to the instruction of youth, thereby enabling the children of colonists to become acquainted with learning of a character which otherwise would not be possible in their peculiar and scattered position. And it may here be remarked, to the honour of our colonies, that without exception no money is so readily and unanimously voted as the funds required for introducing educated men as professors and teachers, and carrying out the great principle of educating the children of colonists of every grade. Nor should it be overlooked that in the absence of hospitals, dispensaries, and with medical men sometimes resident at a great distance, the medicine chest and the intelligent advice of the minister are frequently of great service to settlers.

Travelling in a dense forest is always impressive, but most intensely so when camping out on the Sunday. One listens in vain, in the deep solemn silence, for the once familiar "sound of the Church-going bells," and all day long is silence, ever silence. Many a time have I strained the ear to catch again in imagination the dear sound of Saint Saviour's bells, whose sweet peals so oft on Sunday mornings came wafted adown the silent river, making soft and pleasant music to me when a boy in the old home of my father. I envy not him who can hear without emotion the simple tolling of the bell for service in some little backwood settlement, or the well-known strains arising from assembled worshippers, of the Morning Hymn or the Old Hundredth Psalm.

Amusements.

It would be quite impossible within our prescribed limits to do more than barely call attention to the fact that the national love of hunting, shooting, yachting, rowing, fishing, racing, gratifies and expends its humour in every part of the world.

Fiords in the extreme of Norway are leased for fishing; African elephants fall by the guns of British sportsmen; and the Indian tiger is brought low by the English rifle; now a crew row a boat all through the rivers of

Europe; and anon a solitary countryman writes a note from the source of the Nile. It might, therefore, be expected that among colonists, who are so frequently thrown upon their own resources, and are naturally very self-reliant and confident, athletic sports would find great encouragement. We note but one or two.

Racing.—Wherever Frenchmen land a café is opened, wherever Englishmen go a racecourse is arranged, and horse races become an institution of the smallest settlement. By these periodical assemblages a spirit of emulation is kept up amongst colonists, the importation of horses of good breed is encouraged, and the mother country is advantaged by the continued demand for horses of repute and character. Some of the highest prices realised at the sales of English horses are paid by colonial buyers, and in every colonial newspaper advertisements may be found relating to horses recently imported from England. In 1864 we exported 4,657 horses, valued at £230,831.

Cricketing.—This peculiarly English sport is planted in every colony, therefore it cannot depend upon climate; it must be in the race. You cannot make eleven German or French boys understand how such violent sustained exertion can be play or amusement; and yet, wherever English men or boys are, there is cricket. So strong is the love of this game that, within the last few years, a professional eleven have been invited, not only to Canada but to Australia, to exhibit their skill, and the speculation was so successful that a second party has since gone out. As another illustration, I may name that in a recent account of Singapore I find the author reports that the trade which in 1853 amounted to £5,000,000, in 1863 amounted to £17,000,000; and, although the European population is very small, some 800 only, they are noted for their wonderfully good dinners, not omitting plum-pudding on Christmas-day, and, he significantly adds, "they keep race-horses, and play cricket in a temperature of 82°." Perhaps their adhesion to athletic sports under trying circumstances may be accepted as an indication of the vigour the thriving community of Singapore throw into all their transactions.

Theatricals.—My remarks on this point will be limited to the presenting of two pictures in connection with the district of our youngest colony—Vancouver's Island. The first is an extract from Captain Cook's voyage, 25th April, 1778:—"The inlet in which our ships were moored is called by the natives "Nootka," but Captain Cook gave it the name of King George's Sound. As to the natives, their persons in general are under the common stature, their colour could never be determined positively, as their bodies were incrusted with paint and dirt. They wear a cap in shape of a flower pot, made of very fine matting, ornamented with a bunch of leather tassels, and having a string passing under the chin to prevent its blowing off. Besides their ordinary dresses the natives have some that are used only when going to war or exhibiting themselves to strangers in ceremonial visits. The most usual head-dress on these occasions is a quantity of withe wrapped about the head with large feathers. At the same time the face is variously painted, the upper and lower parts being of opposite colours, and the strokes having the appearance of large gashes; or it is besmeared with a kind of fat or tallow, somewhat like carved work. Thus equipped, their ridiculous appearance is heightened when they assume their monstrous decorations. These consist of a great variety of wooden masks applied to the face, forehead, or upper part of the head. Some of the visors resemble human faces, having hair, beards and eyebrows; others represent the heads of birds and various animals, as deer, porpoises, wolves, &c. Such kind of representations exceed the natural size, and are frequently strewed with pieces of mica, which makes them glitter, and augments their deformity. In these imaginary decorations they sometimes run into great excess, and fix large pieces of carved work upon the head projecting to a considerable distance, and resembling the prow of a canoe. Whether these grotesque masquerade ornaments were for diversion, religion, or intimidation, Captain Cook was uncertain. Sonnets were sung by single performers keeping time by striking the hand against the thigh; a rattle and a small whistle being the only instruments of music which we saw amongst them. The rattle is used when they sing." Here, then we have Vancouver's Island amusing itself in masquerade, music and song; struggling to vie with Rome in its carnival—the great globe between.

Had we visited Vancouver's Island in 1778 we should have been treated to a musical festival of a rattle and a whistle. Had it been our fortune to go thither in December, 1864, what kind of amusement would have been afforded us? I quote from the *Times* of the 18th February, 1865:—

"On the 12th December, 1864, those eminent artists, Mr. and Mrs. Charles Kean, commenced an engagement for six nights at the Victoria Theatre, Vancouver's Island, in the course of which they performed "Henry VIII.," "Louis XI.," "Hamlet," "Merchant of Venice," "Macbeth," "Othello," and "The Jealous Wife." After the termination of their engagement, which proved successful beyond expectation, the Mayor and members of the Council waited upon them at their hotel and delivered a complimentary address."

A rattle and whistle! Hamlet and Corporation thanks! How great the contrast!

Fine Arts.

Industrial Art Exhibition, Paris.—The doors of this first exhibition, got up by the new Société des Beaux Arts appliqués à l'Industrie, were opened, as promised, on the tenth instant, and when the objects are completely arranged the collection promises to be exceedingly interesting. The arrangements of the interior, due to M. Guichard, architect and president of the society, are in excellent taste, the most prominent feature being the new staircase which has already been mentioned in the *Journal.* This improved mode of connecting the body of the building with the galleries is achieved by the construction of two noble flights, of eighty stairs each, in four compartments, commencing at the sides of the west end of the Palais de l'Industrie, and meeting in a bold landing over the western door. The erection itself is in excellent taste, and is decorated with statues, busts, and other works of art. The outer sides of the staircase are also made available for the purposes of the exhibition. The collections are divided into three distinct categories—the Past, the Present, and the Future of Industrial Art. The first of these, the retrospective museum, occupies the western gallery, to which the new staircase directly leads, and will form a fine collection of the productions of bygone times. The Barons Rothchild have sent their rare enamels, majolica and Palissy ware, Italian furniture, cabinet and other objects from their residences in Paris and Ferrières; M. Henri Didier and M. Joseph Fau, a quantity of beautiful carved wood work: M. Double, a collection of Louis XVI. furniture; M. H. dela Salle, a fine series of antique bronzes; M. Dutuit, some remarkable triptyches and curious illustrations of horology; M. Basilewsky, his Byzantine museum; M. d'Yvon, a series of Florentine bronzes; Prince Czartorisky has placed the contents of the famous Hôtel Lambert at the disposal of the society, including old regalia of his regal house, his curious collections of saddlery and Polish tapestry; Baron Pichou contributes silver ware; Doctor Piogey, Chinese objects; Messieurs Pascal, Davillier, Maillet-Duboulay, Scheffer, de Monville and others, *faïences* of French, Persian, and other manufactures; M. de Nieuwerkerke, M. Saint Seine, and M. Spitzer, collections of arms; M. Lecarpentier, his celebrated museum of antique art of all kinds; M. Techner, some extremely fine historic book-binding; and other well-known amateurs, articles of various kinds. The body of the building is devoted to the actual productions of the present day, and promises to present the best collection perhaps yet seen of modern French ironwork, castings, bronzes, gold, silver, and ornamental wares, porcelain, earthenware, furniture, carriages, sculptures in marble, wood, and other materials, terra-cottas, carpets, tapestry, and other products of industrial art. The third, or future, portion of the exhibition consists of the works of the schools of design, lycées, primary and other schools, and comprises an enormous number of drawings and sketches. This exhibition may be looked upon as a very important prelude to the greater one of 1867, and the society by which it is instituted is patriotically determined to do all it can to gain if possible for France a yet higher place than she has heretofore attained in industrial art. The intention and the friendly rivalry, which is one of its results, are honourable and excellent, and there is this satisfaction respecting such a struggle that, whoever may carry off the greatest amount of honours, all the world will benefit by the advance of each competitor. The field is one in which no dishonour can accrue, and the lottery one in which there are no blanks.

Luxembourg Gallery.—This gallery is closed at the present moment, for the purpose of hanging the pictures purchased by the Government at the last annual exhibition and during the past twelve months. This will afford an additional attraction to those who visit Paris this autumn.

The Meeting of the French and English Fleets.—M. Durand Brager, a well-known marine painter, has been commissioned by the Imperial Government of France to follow the manœuvres of the combined fleets at Cherbourg, Brest, and Spithead, and to record on canvas the most striking and interesting episodes of this grand naval assemblage.

Bronzes in France.—It appears that the bronze manufacturers of Paris have determined to give prizes for which their workmen may compete. They offer £32 for a sculptured work of art; and the same amount for a sculptured ornament; £64 for the best chiselled work; £20 for the best drawing; £24 to the founders who shall turn out the best work; £16 to the best turner; and £12 to the best fitter. There are likewise medals to be given, and "honourable mention" to be made of those who may distinguish themselves. Competitors must send in their works between the 10th and 16th of November next.

Manufactures.

Hardy Silk Worms.—The disease which has attacked the silk worms in all the silk-growing countries of Europe, and even in China, and upon which some remarks will be found in the *Journal* of the 30th of June in the present year, seems to have produced more ravage than ever this year. It made its first appearance in 1856, and attracted special notice from the Jurors of Class IV. at the Universal Exhibition of 1862. Even before that time experiments had been made towards the introduction of other worms than those which feed on the mulberry tree, and the subject has been pursued in France with much determination, and with fair promise of success. Worms have been introduced which feed on the castor-oil plant, jujube, oak, and *Ailanthus*—originally called, by mistake, in France, the *Vernis de Japon*, from the supposition that it was the tree from which the Japanese obtained the beautiful varnish which covers their lacquered and other ware. M. Guerin-Meneville, a distinguished naturalist, who obtained a medal for his exhibition of various worms and their products in 1862, and who has since established a publication entitled *Revue de Sericiculture Comparée*, in which all the experiments and improvements connected with the production of silk are carefully recorded, has given great attention to the subject, and has been aided in his work by the Acclimatisation Society of Paris, as well as by the Government. In a small house, situated on a waste piece of ground appertaining to the Imperial farm at Vincennes—or rather at Joinville-le-Pont, a station beyond Vincennes, on the same line of railway—M. Guerin-Meneville has reared and propagated several new and strange species of worms, and it was he who succeeded in obtaining the first specimen known to have been born in Europe of the gigantic moth of the *Bombyx Atlas* of India, mentioned in the *Journal* of the 4th instant. This splendid moth was unfortunately the only one which was hatched from larvæ obtained from the eggs received from India, so that this experiment of acclimatisation has been stopped for the present. The moth in question covers a space nearly two-thirds of the size of a page of the *Journal*, and cannot be much less than six inches across at the lower part, from the tip of one wing to that of the other, or under five inches in the other direction; its colours are brilliantly lighted up by metallic reflections, and near the tip of each wing is a mark which closely resembles the eye of the peacock's feathers. It is however the *Bombyx cynthia* or Ailanthus silk-worm, introduced into France by M. Guerin-Meneville in 1858, which has attracted most attention. It is now bred in several departments of France, in Italy, and in other countries, and seems to offer promise of the production of a new material of manufacture in England and Ireland. In the *Moniteur Universel* of the 6th of June this worm is announced as being perfectly acclimatised; and a list of the silk-worm rearers in the provinces who are prepared to supply considerable quantities of the eggs is appended. The ailanthus itself well deserves attention, irrespective of the worms which feed upon its leaves. It has been long known in America, and within a few years has become common in Paris and other parts of France. The extent to which its cultivation has been pushed in the last-named country will be seen by the fact that the Imperial Director of forests ordered, in 1863, no less than four tons of the seed. In fact, it would be difficult now to find a garden, "parc," "square," or pleasure-ground in or near Paris without the *Vernis de Japon*, and two, if not more, of the great Boulevards are planted with it exclusively. It is a showy tree, resembling at first sight the ash, but growing, when placed in good conditions, in a beautiful conical form, and exhibiting great freshness and a charming variety of colour in its foliage; it grows with extraordinary rapidity, and in any kind of soil; supplies good fuel, and its wood is said to compare favourably with that of the oak and the elm. The *Bombyx cynthia* or ailanthus worms are found to succeed out of doors better than under shelter. M. Guerin-Meneville says that the dew is necessary for their success; and he supplies this to the young worms, which he keeps within doors for a few days after they are hatched, on branches of the ailanthus placed in water, by means of a pair of bellows with a reservoir attached, which sends the water in a fine shower on the leaves. The worms seem quite indifferent to the changes in the weather; wind, rain, or frost apparently not injuring them; but of course the cocoon is produced more quickly in genial weather. At the present moment M. Guerin-Meneville has worms of the second family this year half grown or more. Experiments have been made with the ailanthus worms by several gentlemen in England, and doubtless evidence may be obtained from them as to the success both of the tree and the insect. M. Guerin-Meneville says that both flourish still better in the United Kingdom than in France. If this prove to be the case generally, the encouragement of the culture and education of the ailanthus and its consumer would be a great national benefit, especially as the greater part of the duties connected with silk rearing may be performed by women and children and persons of little physical power The silk produced is not of the fineness and beauty of China silk; on the contrary, it is dark in colour and somewhat coarse, like the Tussah silk of India; and, in consequence of the cocoon being open at one end, thus allowing the escape of the moth without difficulty, it will not float on water like that of the true silkworm, and the silk cannot therefore be wound off in the same manner; and moreover the absence of the gummy matter prevents the filaments adhering to each other, so that at present it yields only what is called spun silk; but it is said that M. Aubenas, of Loriol, in France, has invented a method of winding it, which is now being put into practical operation. On the other hand, the ailanthus silk bleaches and takes dyes fairly, and thus promises in any case to be a very useful addition to our textile materials; and there is little doubt that manufacturers would soon find the means of bringing it into profitable employment either alone or mixed with other filaments. The best season for planting the ailanthus is now approaching, and therefore the time is opportune for the consideration of the subject.

Colonies.

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Agricultural Society of New South Wales.—The Annual Exhibition of stock, cereals, and other produce, under the auspices of this association, took place in May, at the Upper Park, Parramatta. Excepting the entries of machinery and agricultural implements, of which there was a remarkable deficiency, the exhibits, in quantity and quality, exceeded expectations. Of imported and colonial-bred cattle there was a satisfactory show; and still more so of blood stock—of colonial-bred stallions, of imported and colonial-bred sheep (the latter being interesting as illustrating the progress of sheep farming in the county of Cumberland), and of pigs. The poultry was particularly noticeable, the Dorking and Poland fowls being most admired, and the other varieties being largely represented. The display of fruits and vegetables was not so perfect as that of former agricultural shows. Two specimens of sugar from Port Macquarie, exhibited by the Rev. E. Holland, together with one of arrowroot and of treacle, attracted much attention—the sugar being of excellent appearance and flavour. Among the extra exhibits was some carefully prepared specimens of silk, shown by Mrs. B. Lee, of Parramatta; preserved fruit, colonial cigars and salt.

Sugar in New South Wales. — A Maitland paper says that the new company formed to cultivate this product have taken up one hundred acres of land, and it is very probable that ere long that area will be considerably extended. They have two acres of cane growing, and it was reputed to be in a flourishing condition, more so than that in the same stage of growth on the Queensland plantation. This augurs well for the adaptability of this new product to the soil. By September next they will have fifty acres planted, and the other fifty will be ready by the ensuing year. The company also purpose to plant a quantity of sorghum as an experiment, to ascertain its sugar-producing qualities, though they believe that ultimately the sugar-cane will prove the most remunerative.

Paraffin Oil in New South Wales. — Much attention has been directed to the discovery of the mineral from which paraffin oil can be obtained. Extensive seams of this mineral are said to have been found in different parts of the colony—near Hartley, near Wollongong, and near Maitland. The samples obtained from these seams differ considerably from each other in appearance, in fracture, and in yield, but they have been proved to be available. The seam discovered in the Hartley district is situated in the vale of Clwyd, about four miles from Little Hartley. The seam was discovered in consequence of some pieces of the mineral out-cropping in the alluvium; it is five and a half feet in thickness, and is worked through a tunnel. Experiments have been made which show, it is alleged, that this mineral resembles that worked in Scotland, and known as Bog-head coal. It was also stated that the Hartley mineral was superior to that of Bog-head, in consequence of its yielding a larger quantity of oil, and also of its freeness from sulphur. Two feet of the gas made from this mineral gave, it was said, a greater illuminating power than five feet of gas obtained from ordinary coal. It was estimated that a ton of the mineral would yield about 140 gallons of crude oil. The annual import of kerosene oil into this colony is set down at 200,000 gallons, and that into the whole of the Australian colonies at about a million gallons; and it was confidently believed that the oil could be produced there at a lower price than it could be imported from America, and that therefore an extensive and valuable source of productive wealth would be opened up.

English Game in Victoria.—The acclimatisation in Victoria, of the English hare and pheasant, appears to be successful. At a recent meeting of the Council of the Acclimatisation Society there, a most encouraging statement was given as to the results of the breeding season. About 200 pheasants had been reared, and in one paddock 13 hares had been counted.

Manufactures of New Zealand.—Amongst other recent additions to the works and manufactures of this colony are bleaching and dye works. A carriage factory has recently been established, and although to some the project at first appeared somewhat chimerical, a steady and rapidly-increasing business has sprung up. The premises are unpretentious enough, but it is stated some of the gay equipages which are now constantly seen in the streets of Auckland have either been built at this establishment, or have received finishing touches in their construction and repairs. The proprietors, having recently secured skilled labour from the Australian colonies, have been turning out some very superior vehicles. Very considerable progress has been made in the erection of the gas works at Brickfield Bay, and an announcement had been made by the directors that they would be prepared shortly to light Auckland with gas. The mains through the city have almost all been laid, and connecting pipes are being introduced in most of the principal business premises in the principal streets of the City.

Italian Labour in Queensland.—A company has been formed for the importation to this colony of a stream of Italian artizans skilled in the production, cultivation, and management of various products suitable to the climate of Queensland, such as olives, citrons, spices, vines, oranges, and mulberry trees, and dried fruits, such as figs, raisins, currants, &c., as the climate of this colony and that of the south of Italy are generally said to be similar. The projectors state that the Colonial Ministry intend to propose to parliament that a lease over 20,000 acres, in the vicinity of Brisbane, be granted to the company, at a nominal rental, and for a term of ten years, and at the expiration of this period that a free grant be given to the company of all the land that will then have been improved.

Obituary.

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Sir William Jackson Hooker, K.H., F.R.S., F.L.S., D.C.L., director of the Royal Botanic Gardens at Kew, died on the 12th inst. He was born at Norwich, in 1785, and from an early youth devoted himself to botanical studies, eventually becoming Regius Professor of Botany in the University of Glasgow. That appointment, however, he gave up for the directorship of the *Royal Botanic* Gardens at Kew. On the recommendation of Viscount Melbourne, then Prime Minister, he received the honour of knighthood in 1835, and in 1845 received the degree of D.C.L. from the University of Oxford, on the nomination of the Duke of Wellington, the Chancellor. Sir William was the author of "The British Flora," "Flora Borealis Americana," "Icones Filicum," "Genera Filicum," "Musica Exotici," "Flora Exotica," "Musculogia Brittanica," &c., and contributed the botanical portion of the work to Admiral Beechey's account of his voyage of discovery in the Arctic region. He was a member of most of the learned and scientific societies, both upon the Continent and in America, and Knight of the Legion of Honour.

Publications Issued.

Le Mouton. Paris. 8vo.—The natural history of the sheep, its breeding and management, value, and disease, by M. Lefour, Inspector-General of Agriculture in France.

Les Chemins de Fer Aujourd'hui et dans Cent Ans, etc., by M. Audiganne, Paris.—A treatise on railroads in the financial, industrial, political, and moral point of view, by the author of a remarkable book on the working populations and industry of France.

La Danse des Noces. Folio; Paris.—A reproduction, in twenty plates, of one of the most curious series of wood engravings of the earlier half of the sixteenth century, the work of Hans Scheufelein, the date of whose birth is supposed to be 1490; he was a pupil of Albert Durer, with whom he worked till 1512, when he went to Augsbourg to illustrate the celebrated *Thewrdannck*, produced at the expense of Maximilian I. In 1515 he was made a burgess of Nordlingen, for his picture of the "Battle of Béthulic," now in the Hôtel de Ville of that city, and his works are well known in Germany; there are three in the Museum of Berlin, and six in the Pinakotheque at Munich. The "Danse des Noces" is in fact a marriage procession; one plate represents a platform or tribune with musicians, a fool, and other figures; another, three torch-bearers preceding the bride, who is escorted by two cavaliers; and each of the others, a lady or gentleman marching or dancing. The style is extremely bold, the figures about ten inches in height, and the costumes and details give the work an interest apart from that of its antiquity and intrinsic value as a work of art. The last of the original editions was published in 1560, and the first probably thirty years previously. The work has been reproduced with great care by Johannes Schratt, from a copy of the first edition in the possession of the Master of Ordnance of Hauslab, at Vienna. A biographical notice, by Dr. Andresen, precedes the plates.

Forthcoming Publications.

Histoire de Leonardo da Vinci.—M. Arsène Houssaye, the well-known writer and editor of the *Artiste* of Paris, is engaged on a life of the celebrated painter, whose remains were discovered by M. Houssaye at Amboise. It is promised in the winter of the present year.

Notes.

Bernard Palissy's Furnace.—A most interesting discovery has been made beneath that portion of the gallery of the Louvre which joined the Tuileries on the river side, and which is now being re-built. The workmen came upon a large potter's furnace, or oven, which was opened under the direction of M. Adolphe Berty, architect, and found to contain a certain number of moulds for the production of statues. A letter is in existence in which Bernard Palissy proposed to Catherine de Medicis to construct, in the garden which then adjoined the Tuileries, a monumental grotto, decorated with extraordinary figures, of which the writer gives a minute description. The moulds are said to agree precisely with those descriptions, and it is therefore conjectured that Palissy set up his kiln in the immediate neighbourhood of the grot to be executed. There was found also amongst other relics, the mould of the bust of a soldier, supposed to have been one of the Queen's Swiss guard, a man of peculiar build. Further researches are being made.

Adoption of Electric Communication between Passengers and Guards on the South-Western Railway.—The managing authorities of the London and South-Western Railway have just adopted the system of electric communication between passengers and guards of trains which was brought lately under the notice of the public by Mr. Preece, the telegraphic superintendent of their line. The carriages of the Exeter express are now fitted with the apparatus, and plain directions for its use have been issued. These are as follows:—"In the event of something of a serious nature occurring which urgently requires the stoppage of the train, the passenger may 'break the glass' and 'ring,' by moving the bell handle in the direction denoted by the arrow. Thereby a bell will ring in each guard's van, and also on the engine. When the guards and enginemen hear the bell ring, they will at once look carefully along each side of the train, and in case any violent oscillation be seen, or a carriage be on fire, or other occurrence of a serious character be observed, the train will be stopped as speedily as possible, and when stopped must be protected by signals as prescribed. Should, however, the guard and engine-driver fail to observe anything which really necessitates an immediate stoppage of the train, their duty will be to stop the train at the next station or junction, so as to protect the train when stopped by the fixed signals. When the train is stopped, the passenger who broke the glass and rang the bell will communicate with the guard; but should he fail to do so, the guard will detect the compartment from which the passenger gave the alarm by looking for the broken glass; and, in case the alarm has been mischievously and wantonly given, or from some insufficient cause, the names and addresses of all the passengers in that compartment will be taken, in order that the law may be enforced." The instructions conclude with an earnest request that the passengers will protect the communication from improper and mischievous use, as it is very important that it should not be used without real and urgent necessity.

Ventilation.—General Morin has lately read a paper before the French Academy, on the means for supplying fresh air to meeting rooms, places of entertainment, theatres, railway stations, &c. During the summer he has made experiments in connection with the passage of air over water in a minute state of division; through coils of tube surrounded with water; on the action of metallic surfaces; the watering the roofs; and with openings more or less in number arranged both above and below the galleries, &c. But these different means have turned out of little value; continued watering of the roof alone lowered the temperature within the fraction of a degree below that without. M. Regnault remarked that the plan adopted by General Morin does not solve the question, the solution of which he considered to be based, 1st, on the employment for roofing and for the walls, of a double envelope, between which air will circulate brought in through air-drains formed in the soil, and distributed by means of holes made in a number of pedestals a little higher than the heads of the company. The hot external air and the rays of the sun striking on the outer envelope would produce, in a very simple manner, a draft, causing the air to circulate rapidly between the two envelopes. This system had been applied to the building for the Fine Arts department of the Universal Exhibition of 1855, and found to answer perfectly. General Morin agreed with M. Regnault as to the excellence of the double envelope, but he did not put faith in the supply of air through the air-drains in the soil. He thought it of the utmost importance that his system should be applied to railway stations, where the temperature frequently rose to 45° or 48°.

Age and Voracity of the Pike.—A pike, between four and five feet long, and which is believed to be a century old, was taken recently at St. Paul en Cornillon, on the Loire. In its stomach were found a double-bladed knife, a small key, and the steel snap of a purse. The fish is being prepared for the museum of Saint Etienne.

Flight of Pigeons.—The *Société Colombiphile* of Brussels sent twenty cages, containing 680 carrier pigeons, to the Mairie of Bordeaux the other day, requesting that the birds might be let loose on the following morning, at five o'clock precisely. This was done, and the pigeons rose at once to a considerable height in the air, arranging themselves in groups, and, after a few seconds of apparent hesitation, started off towards the north; about a dozen only rested for a few minutes on the Cathedral and Hôtel de Ville, and then made of in the same direction. The distance from Bordeaux to Brussels is about six hundred and sixty miles, and the pigeons reached home at half-past three o'clock in the afternoon of the same day, so that the journey was performed at the rate of sixty-three miles an hour.

Patents.

From Commissioners of Patents Journal, August 11*th.*

Grants of Provisional Protection.

Air, mechanism for flying through the—1037—G. W. Rothleb.
Aerated liquids, receptacle for—1923—M. B. Schumann.
Ammonia, carbonate of—1933—A. P. Price.
Atmospheric changes, instrument for indicating—1891—H. A. Clum.
Bedsteads. sofas, and chairs—1912—G. Wilson and J. Goodfellow.
Bilge water, &c., ejectors for discharging—1981—A. V. Newton.
Boilers, locomotive and other tubular—1990—L. E. C. Martin.
Bolt screwing machines—1949—W. E. Newton.
Boots, shoes, &c., lacing of—1931—J. H. Johnson.
Breech-loading guns—1888—C. Rosson.
Breech-loading guns, fire-arms and cartridges for—1889—W. Tranter.
Buttons, studs, and solitaires, shank for—1930—H. Wright.
Cable shackle, chain or iron—1036—R. Turner.
Cap frames—1966—R. Worsnop.
Capillary attraction, motive power by—1874—J. E. F. Ludeke.
Casks and barrels, air-proof solutions for—1957—W. E. Newton.
Cotton, covers for rollers used in spinning—1901—G. Taylor and J. Crossley.
Crinolines—1974—A. Y. Rehm.
Docks, floating—1692—G. Turton.
Drawing instrument—1854—G. Clark.
Dress shirts and dresses, manufacture of—1188—E. Moore.
Electricity from magnets and induction coils, currents of—1979—A. V. Newton.
Electric telegraph instruments and relays—1654—I. Baggs.
Fabrics for hot pressing, folding—1909—W. S. Yates and A. Freeman.
Fire, giving alarm of—1998—J. Crean and C. J. Barr.
Flax, &c., preparing machinery for—1977—J. Lawson & E. G. Fitton.
Friction pulleys, &c.—1927—M. J. Roberts.
Gold, testing alloys of—1994—H. Levy.
Gunpowder, compositions similar to—1939—E. Spicer.
Hydraulic motive power machinery—1642—V. Baker.
India-rubber, &c., forming—1993—A. Ford.
Leather, rolling—2007—J. H. Tyler.
Linen, &c., manufacture of—1985—T. B. Paton.
Lock, fastening or—2003—R. Bailey and J. Eagland.
Locks and latch bolts—1902—J. Walton.
Locomotive boiler furnaces—1929—J. Juckes and J. Swinburne.
Metals, machinery for planing—1942—W. E. Newton.
Meters, fluid—1940—S. Lusty.
Motive power by heated air or aeriform fluid—1915—M. P. W. Roulton.
Motive power by heat, obtaining—1992—M. P. W. Boulton.
Motive power, obtaining—1910—E. Perré.
Omnibuses—1951—A. Cheffins.
Organs and harmoniums—1895—R. Smyth and W. E. Evans.
Ornamental fabrics, weaving—1960—W. Cockburn.
Outfitts, military and other—1926—T. J. Mayall.
Paddle wheels—1288—C. S. Baker.
Paper collars, machinery for making—1537—J. A. Woodbury.
Paper hangings, cutting the edges of—1965—A. A. Larmuth.
Peat in bogs, treating—2004—C. Hodgson.
Petroleum and other hydro-carbon oils, refining—1980—A. V. Newton.
Printers' rollers, composition for—1694—F. G. David.
Propelling, driving, and forcing purposes, mechanism for—1892—T. Swinburne.
Pulp, reducing vegetable fibre to—2002—W. W. Burdon.
Rails and girders, iron—1976—E. Sabel.
Railway and other carriages, break for—1959—R. B. Mitchell.
Railway carriages—1924—J. Rigg.
Railway carriages, breaks, and signals—2005—W. H. Petitjean and E. McNally.
Railway carriages, stopping or retarding—1969—J. Swinburne and J. Laming.
Railways and railway trains, signal and alarm apparatus—1880—J. G. Rowe.
Railways, apparatus for preventing accidents on—1945—J. Jaeques, S. Wenk, and A. A. Mathieu.
Railways, crossings for permanent way of, and also tyres for wheels 1398—J. Armstrong.
Railway tickets, marking or impressing—1948—R. Mortimer.
Railway train, communication between the passengers, guard, and driver of a—1999—F. C. Dear.
Railway trains, communication between passengers and guards in—1997—J. G. Teal.
Railway trains, communication between passengers and guards of—1640—E. Byerley.
Railway trains, signals between passengers, guards, and drivers of—1955—I. Gregory.
Rudders—1919—J. McG. Croft.
Safes—1911—W. Diaper.
Safes, burglar proof—2006—H. Allman.
Safes, &c., fastenings for—1995—T. Andrew and J. W. Taylor.
Sal ammoniac—1936—W. and J. Richards.
Sewing machinery—1941—A. V. Newton.
Sewing machinery and stitch formed by same—1641—G. Haseltine.
Sewing machines—1903—R. M. Wanzer.
Ships' bottoms, composition for coating—1943—F. Pulman and R. Ginman.
Ships' logs—1830—F. Massey.
Ships, composition for coating the bottoms of—1986—W. La Penotière.
Ships, propulsion of—1899—St. J. V. Day.
Soda and carbonate of—1914—J. P. Gillard.
Steam and other engines, valves for—1913—W. E. Newton.
Steam engines, condensing apparatus for—1897—M. L. Parry.
Steam, generating—1938—G. T. Bousfield.
Stoves and ranges, cooking—1944—W. Barton.
Swimming, apparatus for—1982—W. Clark.
Tables and table stands, ornamental—1925—L. Petré & E. S. Tucker.
Throat, instrument for examining the—1921—R. A. Brooman.
Velvets, plushes, and other pile fabrics—1937—J. Bélicard.
Ventilators—1866—J. P. B. le Patourel.
Vessels, propelling—1890—C. H. Simpson.
Water meter—1958—W. E. Newton.
Waterproofing and insulating purposes, compounds for—1962—F. A. Abel.
Water-power, applying and utilising—1967—V. Baker.
Weaving, looms for—1524—T. Forster and J. Eckersley.
Weaving, looms for—1961—R. Clayton, J. Raper, and J. Goulding.
Windows, apparatus for cleaning—1907—C. Gardner.
Wood incombustible, process for rendering—1900—L. A. M. Chaulin.
Yarns, sizing or dressing—1906—E. Schaub.

Patents Sealed.

418. A. Fryer.
423. R. P. Barrett.
429. W. C. Ridings.
431. W. H. Brown.
432. M. Lane.
433. C. Lungley.
437. R. H. Emerson.
441. W. Kirrage.
462. P. E. Bidaux.
489. J. Keighley & R. Shephard.
654. W. Clay.
1028. R. A. Brooman.
1146. J. F. C. Carle.

From Commissioners of Patents Journal, August 15*th.*

Patents Sealed.

442. R. A. Brooman.
444. H. J. Pickard.
448. J. F. Hearsey.
452. R. Hill & R. Tushingham.
465. C. Brakell, W. Hoehl, and W. Gunther.
470. W. Robinson.
472. L. W. G. Rowe and A. Baab.
477. W. E. Gedge.
478. J. Cliff.
479. J. D. Nicol.
497. T. G. Webb.
517. W. E. Gedge.
561. W. Clark.
583. S. Brooks.
594. W. Clark.
598. J. S. Lillie.
603. H. A. Bonneville.
604. H. A. Bonneville.
606. J. H. Johnson.
607. J. H. Johnson.
618. E. Pettit.
743. A. V. Newton.
1319. H. Ransford.
1418. H. Nunn.
1568. G. Haseltine.
1572. G. Haseltine.
1678. G. Haseltine.

Patents on which the Stamp Duty of £50 has been Paid.

2221. F. M. Jennings.
2226. E. Humphrys.
2244. J. Lancelot.
2413. J. Nickson and T. Waddingham.
2509. T. Molineux.
2247. J. Combe & J. H. Smalpage.
2280. A. Walker.
2380. W. E. Newton.
2877. W. Clark.
2257. A. Delrue.
2258. C. M. Westmacott.
2285. W. Beatson.

Patents on which the Stamp Duty of £100 has been paid.

1868. L. A. Herrmann and E. I. E. Herrmann.
1839. A. J. Paterson.
1851. T. Worth and H. Spencer.